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PROGRESS REPORT

TWELVE MONTHS TO JUNE 1987

ELLIOTT BAY EXPLORATION LICENCE 40/85

TASMANIA

C E TORREY, R POLTOCK, R HARTLEY

JUNE 1987

REPORT 525

CYPRUS

892002

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3 DIAMOND DRILLHOLE LOG - V12/5 (RE LOG)

4 PETROGRAPHIC DESCRIPTIONS
by R N England

5 CHAPTER 5 OF J R LEAS BSc (Hons) THESIS - WART HILL

6 NOTES ON VOYAGER 24 GOLD MINERALIZATION AT ELLIOTT BAY
by Ross R Large

7 ANALYTICAL RESULT SHEETS

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✓2	- Rockchip Geochemistry and		
		o INTERPRETIVE GEOLOGY	1:10000
✓3		o PHOTO INTERPRETED LINEAMENT MAP	1:25000
✓4	- Geology/Geochemistry		
		o LEGEND	
✓5	- Stream Sediment Geochemistry - -80 MESH SAMPLES		
		o SHEET 1	1:10000
✓6		o SHEET 2	1:10000
✓7		o SHEET 3	1:10000
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✓11	- Stream Sediment Geochemistry - Panned Concentrates		
		o SHEET 1	1:10000
✓12		o SHEET 2	1:10000
✓13		o SHEET 3	1:10000
✓14		o SHEET 4	1:10000
✓15		o SHEET 5	1:10000
✓16		o SHEET 6	1:10000
✓17	- Gold Geochemistry Compilation Stream Sediment and Rockchips		
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✓18		o SHEET 2	1:10000
✓19		o SHEET 3	1:10000
✓20		o SHEET 4	1:10000
✓21		o SHEET 5	1:10000
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✓23		o PROSPECT LOCALITY	1:25000
✓24	**WANDERER SOUTH** - Profiles		
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✓25		o LINE 6	1:5000
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✓27	**PYTHON PIT** - Profiles		
		o LINE 23	1:5000

✓28	**MT OSMUND WEST** - Profiles		
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✓29		o LINE 14600N	1:5000
✓30		o LINE 25	1:5000
✓31	**WOOLOOMOOLOO CREEK** - Profiles		1:5000
✓32	**MT OSMUND EAST** - Profiles		
		o LINE 15	1:5000
✓33		o LINE 16	1:5000
✓34		o LINE 17	1:5000
✓35		o LINE 18	1:5000
✓36	**NORTH WATERLOO CREEK** - Profiles		
		o LINE 5100	1:5000
✓37	**NORTH LEWIS**	o GEOLOGY	1:2500
✓38	- Soil Geochemistry		
		o SAMPLE LOCATION	1:2500
✓39		o COPPER	1:2500
✓40		o LEAD	1:2500
✓41		o ZINC	1:2500
✓42		o SILVER	1:2500
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		o SAMPLE LOCATIONS	1:2500
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		o SAMPLE LOCATIONS	1:2500
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✓50		o SILVER, ARSENIC & GOLD	1:2500
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		o COPPER	1:1000
✓59		o LEAD	1:1000
✓60		o ZINC	1:1000
✓61		o SILVER	1:1000
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		o LINE 6	1:5000
✓66		o LINE 7	1:5000
✓67		o LINE 7.5	1:5000
✓68		o LINE 7.6 & 8	1:5000
✓69		o LINE 9	1:5000
✓70	**LEWIS RIVER**	o GEOLOGY	1:2500
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		o RESULTS	1:2500
✓72	- Soil Geochemistry		1:2500
		o SAMPLE LOCATIONS	1:2500
✓73		o COPPER	1:2500
✓74		o LEAD	1:2500
✓75		o ZINC	1:2500
✓76		o SILVER	1:2500
✓77		o ARSENIC	1:2500
✓78		o GOLD	1:2500
✓79	- Ground Magnetics		
		o DATA	1:2500
✓80		o STACKED PROFILES	1:2500

ELLIOTT BAY - E.L. 40 / 85

MAP LIST TITLES	COMPUTER NAME	DISC NO.	NOTES	REVISION DATE
LEWIS RIVER PROSPECT	EBLRBASE	5		
Geology & Rock Chip Location	EBLRGEOL	5		
Rock Chip Results	EBLRRCSS	5		
Soil Sample Location	EBLRGEOC	5		
Soil Sample Results - Cu	"	5		
" - Pb	"	5		
" - Zn	"	5		
" - Ag	"	5		
" - As	"	5		
" - Au	"	5		
Ground Magnetics Data	EBLRMAG	5		
Ground Stacked Profiles	EBLRMAGP	5		
MAGNETIC ANOMOLY 1				
A3 Locality & Results	EBI03MAI	9		
MAGNETIC ANOMOLY 2				
A4 Locality & Results	EBI03MA2	9		
MAGNETIC ANOMOLY 3				
A3 Locality & Results	EBI03MA3	9		
A3 Magnetic Data	EBMAG3M	II		
MAGNETIC ANOMOLY 4				
A3 Locality & Results	EBI03MA4	9		
MAGNETIC ANOMOLY 5				
A3 Locality	EBI03MA5	II		
Profiles	EBMA5P	10		
MAINWARING RIVER				
A3 Locality & Geology Plan	EBI03MR	II		
MISCELLANEOUS				
Legend	EBA3GLEG	13		
MT. OSMUND EAST				
A3 Locality & Geology Plan	EBI03MOE	II		
LINE 15 Profile	EBMOEI5P	7		
LINE 16 Profile	EBMOEI6P	7		
LINE 17 Profile	EBMOEI7P	7		
MT. OSMUND WEST				
A3 Locality & Geology Plan	EBI03MOW	II		
LINE 25 Profile	EBMOW25P	7		
LINE 14600N Profile	EBMOW46P	7		
LINE 14200N Profile	EBMOW42P	7		
NORTH LEWIS				
Geology	EBNLGEOL	1		
Geochemistry & Rock Chip Location	EBNLRCSS	2		
Rock Chip Results - Cu,Zn,Pb	"	2		
" - Ag,As,Au	"	2		
Schematic Rock Chip & Sample Location	EBNLSCRC	2		

ELLIOTT BAY - E.L. 40 / 85

MAP LIST TITLES	COMPUTER NAME	DISC NO.	NOTES	REVISION DATE
NORTH LEWIS Cont.				
Schematic Rock Chip Results - Cu,Zn,Pb	EBNLSCRC	2		
" - Ag,As,Zn	"	2		
" - Gold	EBNLAU	2		
Rock Chip Compilation & Drill Holes	EBNLRCSS	2		
Soil Sample Location	EBNLGEOC	1		
Soil Sample Results - Cu	"	1		
" - Pb	"	1		
" - Zn	"	1		
" - Ag	"	1		
" - As	"	1		
" - Au	"	1		
Geophysics - Ground Magnetic Contours	EBNLMAG	2		
Geophysics - Ground Magnetic Profiles	EBNLMAGP	2		
Max-Min Stacked Profiles - 222	EBNLMM2	2		
" - 888	EBNLMM3	2		
" - 3555	EBNLMM	2		
" - 3555-222	EBNLMMI	2		
NORTH PORPHYRY CONTACT				
A3 Locality & Geology Plan	EBI03NPC	II		
LINE 6 Profile	EBNPCPI	7		
LINE 7 Profile	EBNPCP3A	7		
LINE 7.5 Profile	EBNPCP3	7		
LINE 7.6 & 8 Profile	EBNPCP	7		
LINE 9 Profile	EBNPCP2	7		
NORTH WATERLOO CREEK				
LINE 18 Profile	EBNWCPI8	10		
LINE 5100 Profile	EBNWCP5I	10		
A4 Geochemistry Plan	EBNWCLI8	10		
PENDERS PROSPECT				
A3 Locality & Geology Plan	EBI03PPG	II		
A4 Geochemistry - "Strip A"	EBPPRC	10		
A4 Geochemistry - "Strip B"	"	10		
PORPHYRY DOLERITE CONTACT				
A3 Locality & Geology Plan	EBI03PDC	II		
LINE 6450 Profile	EBPDCP	10		
PYTHON PIT				
A3 Locality & Geology Plan	EBI03PP	II		
LINE 23 Profile	EBPPP23	10		
REGIONAL MAPS				
1:25,000 Geology	EB25GEOL	12		
1:25,000 Lineament Map	EB25LAE	18		
1:10,000 Panned Concentration - SHEET 1	EBI0-1PC	8		
" - SHEET 2	EBI0-2PC	8		
" - SHEET 3	EBI0-3PC	8		
" - SHEET 4	EBI0-4PC	8		
" - SHEET 5	EBI0-5PC	8		
" - SHEET 6	EBI0-6PC	8		

ELLIOTT BAY - E.L. 40 / 85

MAP LIST TITLES	COMPUTER NAME	DISC NO.	NOTES	REVISION DATE
REGIONAL MAPS Cont.				
1:10,000 -80# - SHEET 1	EBIO-1SS	8		
" - SHEET 2	EBIO-2SS	8		
" - SHEET 3	EBIO-3SS	8		
" - SHEET 4	EBIO-4SS	8		
" - SHEET 5	EBIO-5SS	8		
" - SHEET 6	EBIO-6SS	8		
1:10,000 Gold Compilation Map - SHEET 1	EBIO-1GG	8		
" - SHEET 2	EBIO-2GG	9		
" - SHEET 3	EBIO-3GG	8		
" - SHEET 4	EBIO-4GG	8		
" - SHEET 5	EBIO-5GG	8		
" - SHEET 6	EBIO-6GG	9		
1:10,000 Geology Map - SHEET 6	EBIO -6G	18		
1:25,000 Previous Work - Anomalies	EB25WORK	18		
1:250,000 Prospect Locality Map	EBA4GEOL	13		
V6				
A3 Locality & Geology Plan	EBIO3V6	11		
WANDERER SOUTH				
A3 Locality & Geology Plan	EBIO3WS	11		
LINE 5 Profile	EBWSP5	10		
LINE 6 Profile	EBWSP6	10		
LINE 7 Profile	EBWSP7	10		
WART HILL				
Base Sheet	EBWHBASE	3		
A3 Geology	EBWHGEOL	3		
A3 Soil Sample Location	EBWHSLOC	3		
Magnetic - Raw Data	EBWHMAGR	4		
Magnetic - Contours	EBWHMAGC	4		
Max-Min Stacked Profiles - 222	EBWHMM3	3		
" - 888	EBWHMM2	3		
" - 3555	EBWHMM1	3		
" - 3555-222	EBWHMM	3		
1:2500 A3 Soil Sample Results - Cu	EBWHA3SG	3		
" - Pb	"	3		
" - Zn	"	3		
" - Ag	"	3		
" - As	"	3		
" - Au	"	3		
1:1000 A1 Soil Sample Results - Ag	EBWHA1SG	4		
" - Cu	"	4		
" - Pb	"	4		
" - Zn	"	4		
" - As	"	4		
Stacked Profiles - Magnetics	EBWHMAGP	3		
WATERLOO CREEK				
Base Sheet	EBWHBASE	6		
Geology & Rock Chip Location	EBWCGEO	6		
Rock Chip Results	EBWCRCSS	6		
Soil Sample Location	EBWCSS	6		

ELLIOTT BAY - E.L. 40 / 85

MAP LIST TITLES	COMPUTER NAME	DISC NO.	NOTES	REVISION DATE
WATERLOO CREEK Cont.				
Soil Sample Results - Cu	EBWCSG	6		
" - Pb	"	6		
" - Zn	"	6		
" - Ag	"	6		
" - As	"	6		
" - Au	"	6		
WOOLOOMOOLOO CREEK				
A3 Locality & Geology Plan	EBIO3WC	11		
LINE 6750 Profile	EBWCKP	10		

ELLIOTT BAY - E.L. 40 / 85

MAP LIST TITLES	COMPUTER NAME	DISC NO.	NOTES	REVISION DATE
BASE SHEETS				
1:10,000 , Creeks - SHEET 1	EB10-1BA	14		
" - SHEET 2	EB10-2BA	15		
" - SHEET 3	EB10-3BA	16		
" - SHEET 4	EB10-4BA	17		
" - SHEET 5	EB10-5BA	14		
" - SHEET 6	EB10-6BA	17		
1:10,000 , AMG - SHEET 1	EBAY1B	13		
" - SHEET 2	EBAY2B	13		
" - SHEET 3	EBAY3B	13		
" - SHEET 4	EBAY4B	13		
" - SHEET 5	EBAY5B	13		
" - SHEET 6	EBAY6B	13		
1:25,000 AMG Grid	EB25BASE	12		
1:25,000 Main Creeks & Rivers	EB25SIMB	12		
1:25,000 Creeks	EB25CKBA	19,20		
PLAN INDEX MASTER SHEETS	CYPLANN	16		

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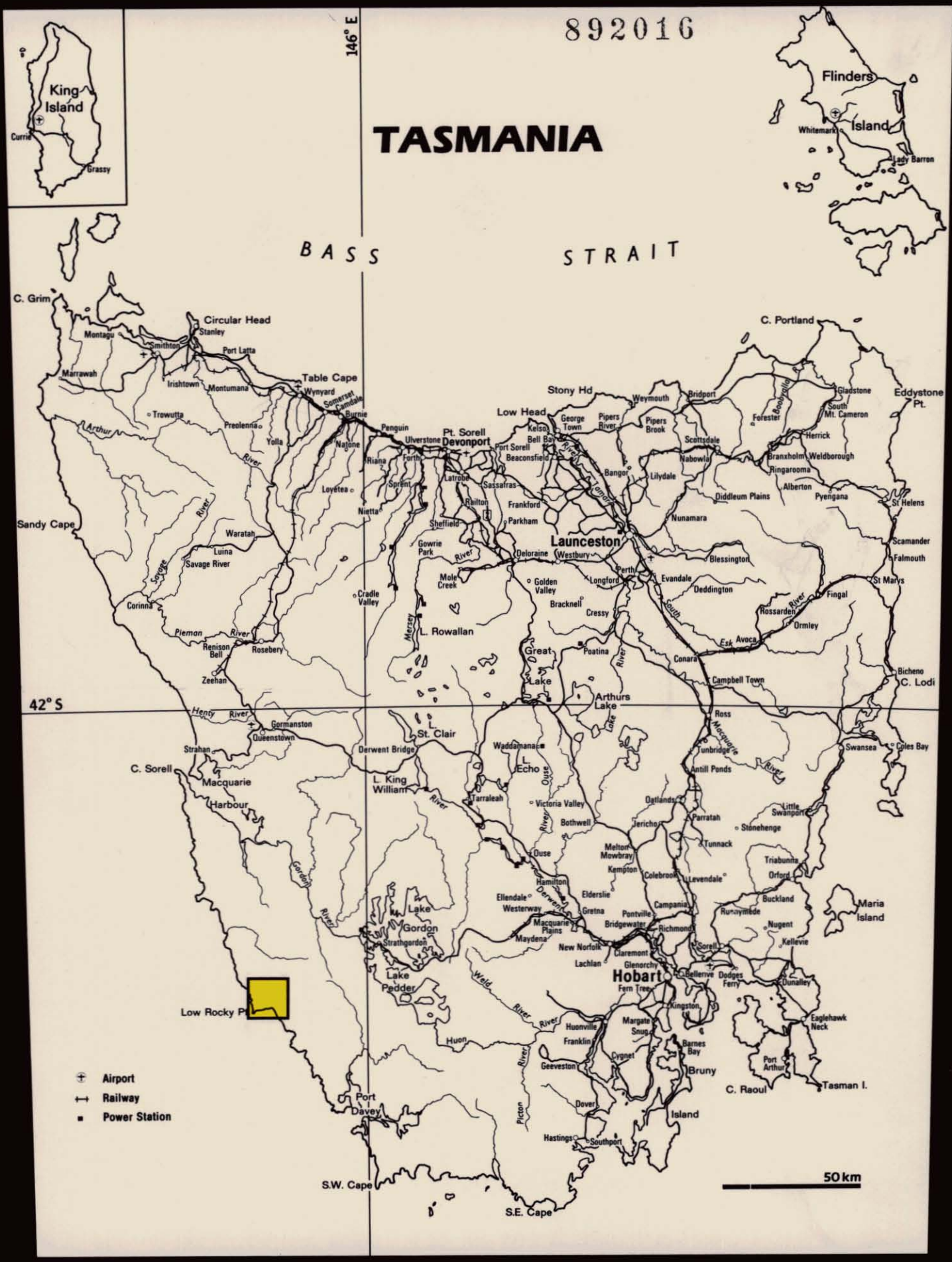

TASMANIA
BASS STRAIT
146° E
42° S
King Island
Currie
Grassy
Flinders Island
Whitemark
Lady Barron
C. Grim
Circular Head
Stanley
Montagu
Smithton
Port Latta
Marrawah
Irishtown
Montumana
Table Cape
Wynyard
Somerset
Camdale
Burnie
Trowutta
Preolenna
Yolla
Natone
Penguin
Ulverstone
Pt. Sorell
Devonport
Port Sorell
Beaconsfield
Riana
Forth
Latrobe
Sassafras
Railton
Frankford
Parkham
Sheffield
Loyetea
Nietta
Sprent
Sandy Cape
Waratah
Luina
Savage River
Corinna
Pieman River
Renison Bell
Rosebery
Zeehan
Arthur River
Cradle Valley
Mole Creek
Gowrie Park
Launceston
Deloraine
Westbury
Perth
Longford
Golden Valley
Bracknell
Cressy
L. Rowallan
Mersey
Great Lake
Poatina
Arthurs Lake
Conara
Campbell Town
Ross
Tunbridge
Antill Ponds
Swansea
Coles Bay
Bicheno
C. Lodi
Evandale
Deddington
Blessington
Nunamara
Diddleum Plains
Alberton
Pyengana
St Helens
Scamander
Falmouth
St Marys
Fingal
Rossarden
Ormley
Avoca
South Esk River
Lake River
Macquarie River
Henty River
Gormanston
Queenstown
Strahan
Derwent Bridge
L. St. Clair
Waddamana
L. Echo
Ouse
Victoria Valley
Tarraleah
L. King William
C. Sorell
Macquarie Harbour
Gordon River
Lake Gordon
Strathgordon
Lake Pedder
Low Rocky Pt
Huon River
Port Davey
S.W. Cape
S.E. Cape
Hobart
Fern Tree
Bellerive
Dodges Ferry
Dunalley
Kingston
Margate
Snug
Huonville
Franklin
Geeveston
Dover
Hastings
Southport
Bruny Island
Barnes Bay
Port Arthur
C. Raoul
Tasman I.
Eaglehawk Neck
Maria Island
Oatlands
Jericho
Parratah
Little Swanport
Stonehenge
Tunnack
Bothwell
Melton Mowbray
Kempton
Colebrook
Levendale
Triabunna
Orford
Buckland
Runnymede
Nugent
Kellevie
Campania
Pontville
Bridgewater
Richmond
Sorell
Elderslie
Ellendale
Westerway
Gretna
Macquarie Plains
Maydena
New Norfolk
Claremont
Glenorchy
Lachlan
Derwent River
Hamilton
Duse
Melton Mowbray
Tunnack
Stonehenge
Little Swanport
Triabunna
Orford
Buckland
Nugent
Kellevie
Maria Island
Eaglehawk Neck
Tasman I.
C. Raoul
Port Arthur
Bruny Island
Barnes Bay
Dunalley
Dodges Ferry
Bellerive
Kingston
Margate
Snug
Huonville
Franklin
Geeveston
Dover
Hastings
Southport
Cygnet
Picton River
Weld River
Huon River
Derwent River
Lake River
Macquarie River
South Esk River
Esk River
Ouse River
Lake River
Arthur River
Forth River
Leven River
Don River
Emu River
Bass Highway
Bass Highway
Bass Highway

SUMMARY AND CONCLUSIONS

A sequence of felsic volcanic rocks at Elliott Bay in Tasmania is considered to be the southernmost extension of the Mount Read Volcanics. Five significant polymetallic massive sulfide deposits occur in these rocks north of Macquarie Harbor.

The 1986/87 seasons field work on EL 40/85 concentrated on follow-up of DIGHEM anomalies and geological and geochemical assessment of the tenement for gold.

Ground follow-up of DIGHEM anomalies in the western part of the tenement indicated the presence of weakly conductive, locally pyritic, black shales. Low priority DIGHEM anomalies east of Mount Osmund proved to be very weak conductors and are attributed to faults or weak alteration zones. No mineralization was located at DIGHEM anomalies.

Regional panned concentrate and -80 mesh stream sampling was carried out in conjunction with geological mapping and rockchip sampling. Most work concentrated in the southeastern part of the tenement where felsic volcanic rocks are intruded and interpreted to be underlain by quartz-feldspar-biotite porphyry or granites. Both regional and detailed exploration indicate two zones of geological/geochemical anomalism.

Zone 1

A corridor (1 by 5 kilometers) of gold and/or arsenic anomalism in stream and rockchip samples is located on the western margin of the Elliott Point Porphyry. Three prospects are recognized from within this zone. They are the old Lewis River prospect (or Voyager 2), the Lewis River prospect and the North Lewis prospect. Each is anomalous in base metals (copper, lead and zinc) in streams, rockchips and soils.

At North Lewis a 100 meter wide and 500 meter long zone of quartz-chlorite-pyrite-tourmaline alteration, brecciation and veining returns rockchip values of up to 4.65% copper, 1.77% lead, 0.2% zinc, 232 g/t silver and 24.3 g/t gold. The zone of mineralization is well constrained by gold and arsenic soil geochemistry. Systematic outcrop sampling returned values up to 1.63 g/t gold, 10 ppm silver, 5520 ppm arsenic, 805 ppm copper, 1875 ppm lead and 650 ppm zinc over intervals of 50 meters. Mineralization persists for the total length of the alteration zone.

Within the Lewis River grid the source of anomalous gold in streams was not adequately defined by soil geochemistry. Best rockchip samples returned 0.64 g/t gold and 5.55% arsenic from small gossans.

Rockchip samples from the old Lewis River prospect were not anomalous in gold but contained elevated arsenic.

Zone 2

Three prospects located on the margins of two southern granite bodies contain anomalous gold in rockchip, stream and/or soil samples. They are the Penders prospect, Voyager 6 and Magnetic Anomaly 3. Where outcrop is observed (Voyager 6) mineralization is contained in narrow quartz-gossan veins which are hosted in altered felsic volcanics at the margin of the granite. The best rockchip value was 7.25 g/t gold at Voyager 6.

Geological, geochemical and geophysical assessment of other areas within the tenement suggest:

- stratabound disseminated gold mineralization located by Geopeko (Voyager 24) warrants further work

- massive sulfide pods (30% lead-zinc combined) at Wart Hill are poor conductors and show no marked magnetic susceptibilities. Electromagnetic exploration techniques have been unsuccessful in delineating these bodies. A review of detailed gravity data is warranted. Detailed soil geochemical sampling has further constrained anomalies around the pods

A regional air photographic interpretation suggests gold and arsenic mineralization and associated alteration are spatially related to either the margins of intrusions or overlying faults which tap fluids above shallow intrusive bodies.

Major structures such as the Osmund Fault are considered to be long lived zones of crustal weakness which over a period of time have provided a conduit for mineralizing fluids and high level porphyritic intrusions. A close spatial relationship exists between major faults and base metal mineralization and alteration at Wart Hill, Voyager 33 and Voyager 9.

Gold located in streams at Elliott Bay has a number of possible sources. These include:

- massive sulfide pods (eg Wart Hill)

- quartz-chlorite-pyrite-tourmaline alteration zones and veins related to shears at the margin of porphyritic intrusions (eg North Lewis)

- quartz-gossan zones associated with magnetite-chlorite alteration at granite margins

- stratabound replacements of coarse pyroclastic units (eg Voyager 24)

- Tertiary gravel sequences (eg North Waterloo Creek and upper reaches of Hudson River)

- quartz veins (eg Waterloo Creek prospect and area marginal to Elliott Point Porphyry)

Work completed this year included:

- evaluation of geophysical surveys by Mitre Geophysics

- collection of 2359 geochemical samples including rockchips, stream sediments (-80 mesh and panned concentrate) and soils

- analyses for copper, lead, zinc, silver, arsenic and gold of all samples and platinum group elements of selected samples

- a total of approximately 40 line kilometers of gridding or line construction was undertaken. Approximately 8.2 line kilometers of the total were cut in dense rainforest and low lying scrub

- core logging of selected diamond drillholes

- mineralographic identification of selected panned concentrates specimens
- petrographic description of selected samples
- approximately 35 line kilometers of ground magnetic surveys
- approximately 22 line kilometers of MAXMIN electromagnetic surveys
- air photographic interpretation of recently flown 1:10000 color photographs

RECOMMENDATIONS

Priority One

- Diamond drill targets on the North Lewis grid. Extension of the grid northward. Continued geochemical sampling, magnetic and VLF-EM surveys

- Diamond drill assessment of Voyager 24. Extension of grid and geochemical survey southward

- Re-evaluation of gravity data at Wart Hill. Diamond drill targets

- Evaluation of regional gravity data

- Evaluation of computer enhanced magnetics and assessment of relationships to regional structure and

known mineralization

Priority Two

- Detailed panned concentrate sampling in the Lewis River grid area in conjunction with break of slope soil sampling

- Detailed sediment sampling of all granite contacts in conjunction with 1:10000 geological mapping

- Detailed sediment sampling of all zones of intense structural deformation especially those which coincide with zones of magnetic disruption or anomalism

- Line cutting, soil and rockchip sampling, geological mapping and detailed sediment sampling of the deformation zone on the western side of the Osmund Syncline north of and including the Mt Osmund West prospect

- Stream sediment sampling of the contact between Elliott Point Porphyry and Precambrian rocks in the eastern part of the tenement

- Re-establish the old grid over the western contact of the granite at Low Rocky Point. Soil sample contact traverses for gold

- Detailed soil and sediment sampling of Magnetic Anomaly 3

Priority Three

- Assay stream samples collected from areas of mafic intrusive rocks for platinum group elements

- Extension of traverse lines on Magnetic Anomaly 1

. Trench sampling of lead-zinc anomalies and detailed soil sampling on Line 8800N at Waterloo Creek

INTRODUCTION

This report details the activities and results of mineral exploration in the Elliott Bay Exploration Licence 40/85 located in southwest Tasmania for the period June 1986 to June 1987. Exploration has been conducted by Cyprus Minerals Australia Company on behalf of joint venture partners Cyprus Minerals and Poseidon Limited.

Work to June 1987 comprises three parts as follows:

- appraisal of DIGHEM data by Mitre Geophysics (Appendix 1) and ground follow-up of anomalies
- evaluation of old prospects for gold potential
- sampling of drainage systems with an emphasis on gold geochemistry and follow-up of gold anomalies

Field operations commenced on January 5, 1987 with a crew comprising four geologists, five field assistants, one geophysical technician, a cook and a helicopter pilot. All operations were conducted from the Tasmanian Mines Department camp at Wart Hill.

A small on-site helicopter (Bell 47) was leased for the duration of the field season and used to transport personnel and equipment to and from work areas. Supplies and fuel were transported to Moores Valley airstrip from a base in Zeehan or from Hobart. Field work ceased on March 23, 1987.

LOCATION AND ACCESS

The Elliott Bay Exploration Licence (EL 40/85) is located on the southwest coast of Tasmania approximately 85 kilometers south-southeast of Strahan (Figure 1). Ground access to the area is via barge from Strahan across Macquarie Harbor to Birchs Inlet thence by tracked vehicle (Bombardier). Tracks have been established by previous mining companies and originally serviced the Low Rocky Point lighthouse.

Transport from Strahan, Queenstown, Zeehan or Hobart to the Moores Valley airstrip was by fixed-wing aircraft. Helicopter shuttles from the airstrip to the camp and work areas proved to be a most effective form of transport.

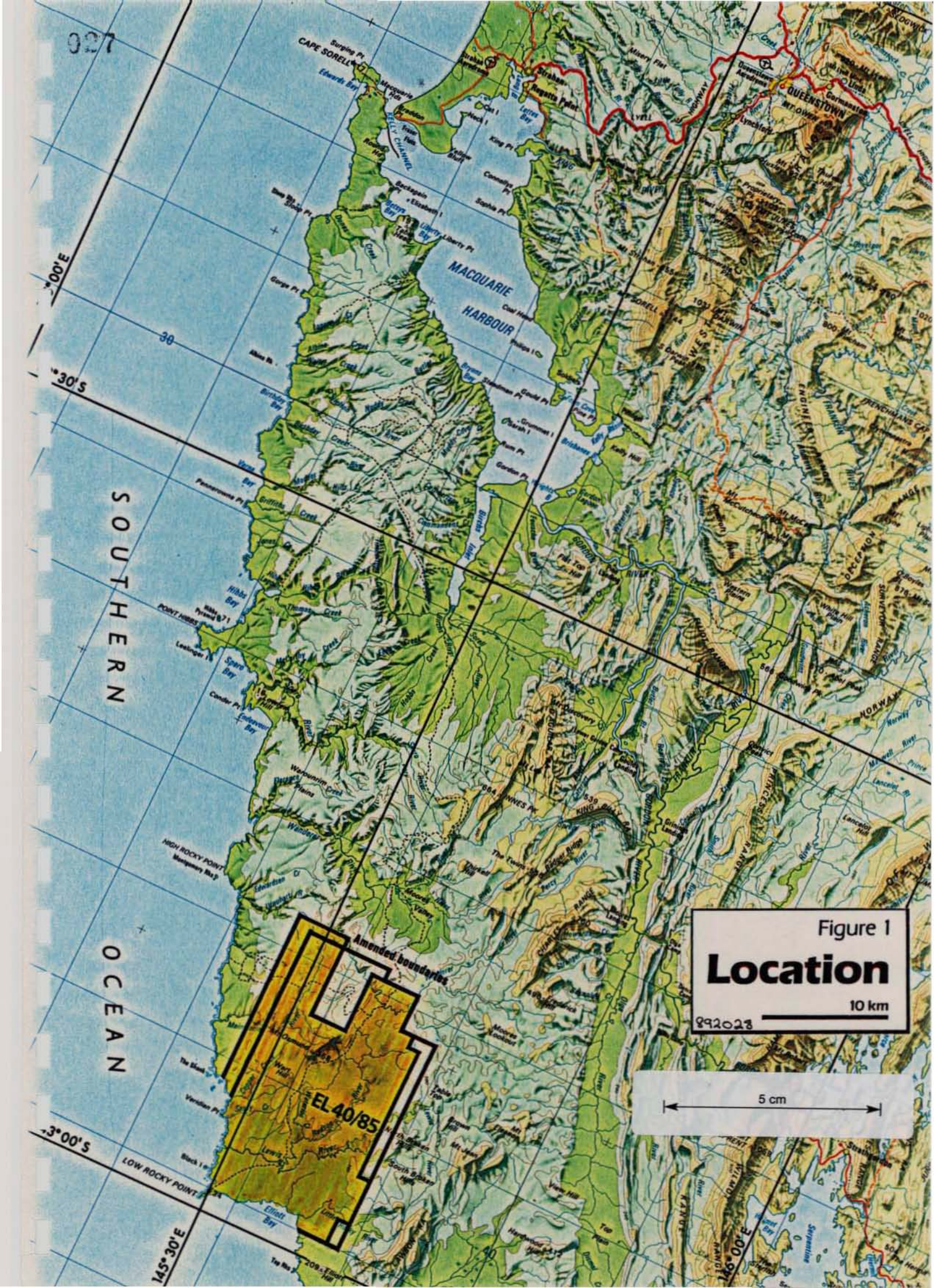


Figure 1
Location

TENEMENT STATUS

The Elliott Bay EL covers an area of 250 square kilometers described as follows:

> Commencing at the posted notice situated at a southeast corner of the area whose AMG grid co-ordinates are 385 350 meters E, 5 240 000 meters N and being a point on the high water mark on Elliott Bay thence by that high water mark in a general westerly then northerly direction to 374 645 E, north to 5 262 695 N, east to 379 000 E, south to 5 256 000 N, east to 382 000 E, north to 5 261 000 N, east to 386 000 E, south to 5 258 000 N, east to 388 000 E, south to 5 246 000 N, east to 389 000 E, south to 5 242 000 N, west to 388 000 E, south to 5 240 000 N, thence west to the point of commencement.

The area is totally within the Southwest Conservation Area and the Southwest Tasmania Australian Heritage Act Registered Entry.

The shape of the licence has been modified slightly since initially granted in order to cover Cambrian volcano-sedimentary sequences to the west of the previous westernmost boundary.

Poseidon Limited have entered into a joint venture agreement with Cyprus whereby both partners contribute 50% to the exploration expenditure with Cyprus as operator.

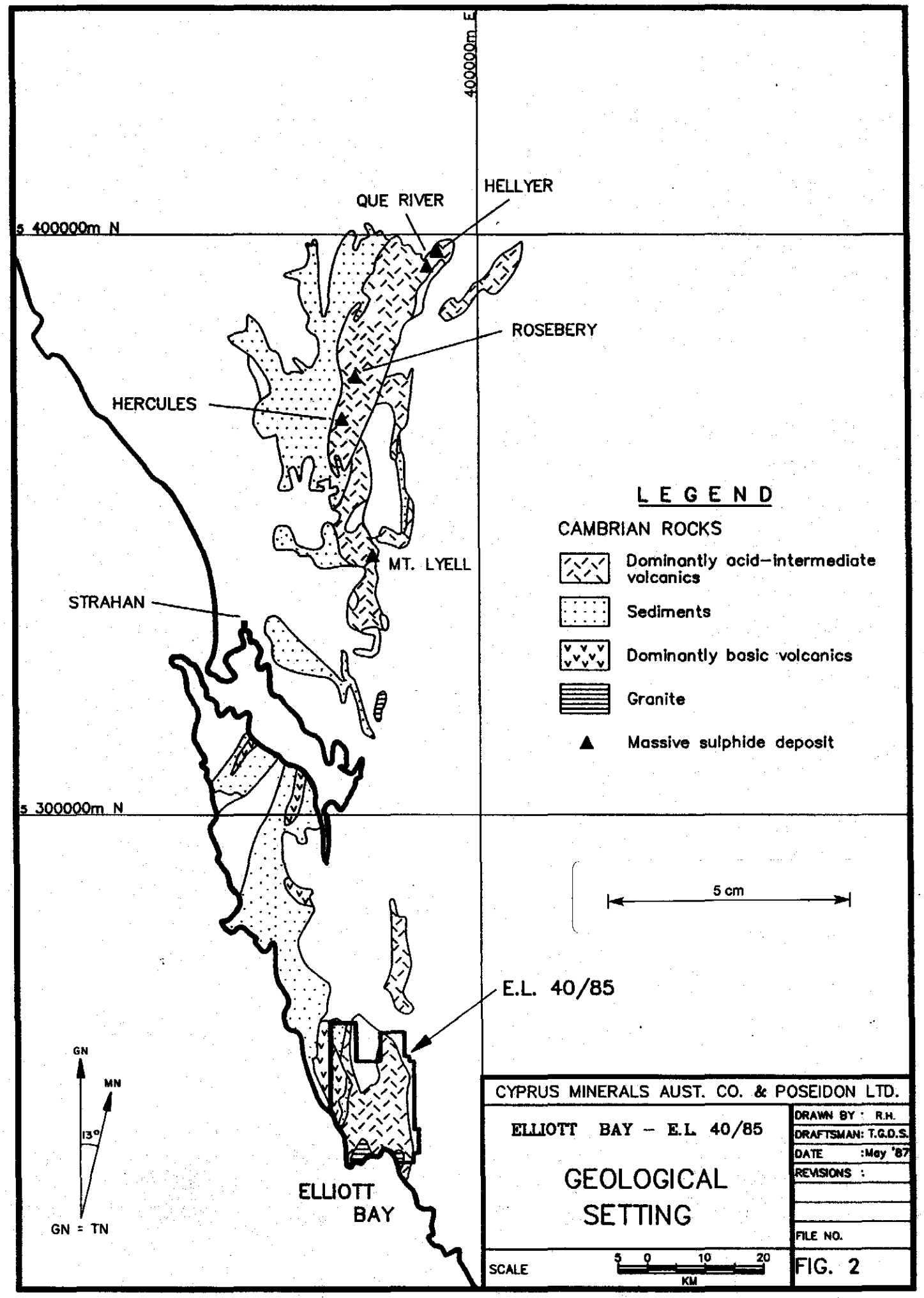
EXPLORATION CONCEPT

The rock types in the Elliott Bay region have been recognized as the southern continuation of the Cambrian Mount Read Volcanics (Hall et al 1969, White 1975). North of Macquarie Harbor these volcanics host five major massive sulfide deposits (Mount Lyell, Rosebery, Hercules, Que River and Hellyer) (Table 1, Figure 2).

These deposits may be grouped into two types:

- high grade, lead-zinc-rich, polymetallic (lead-zinc-copper-silver-gold) stratiform massive sulfides (eg Rosebery, Que River, Hellyer, Hercules)

- low grade copper-rich and disseminated to massive stratabound deposits with low lead, zinc, silver and variable gold (eg Mt Lyell deposits)


400000m E
HELLYER
QUE RIVER
s 400000m N
ROSEBERY
HERCULES
MT. LYELL
STRAHAN
s 300000m N
LEGEND
CAMBRIAN ROCKS
Dominantly acid–intermediate volcanics
Sediments
Dominantly basic volcanics
Granite
Massive sulphide deposit
5 cm
E.L. 40/85
GN
MN
13°
GN = TN
ELLIOTT BAY
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.
ELLIOTT BAY – E.L. 40/85
GEOLOGICAL SETTING
DRAWN BY : R.H.
DRAFTSMAN: T.G.D.S.
DATE :May '87
REVISIONS :
FILE NO.
SCALE
5 0 10 20
KM
FIG. 2

Cyprus considers high grade polymetallic zinc/lead-rich deposits with appreciable gold content are attractive targets in the Elliott Bay tenement.

Models developed by Cyprus and others elsewhere in eastern Australia suggest Elliott Bay also holds potential for gold mineralization related to Cambrian intrusions. Stockworks, skarn/replacement, breccia or vein deposits are considered highly prospective. Much of this seasons exploration effort was directed toward gold mineralization related to porphyritic-granitic intrusions.

TABLE 1 MASSIVE SULFIDE DEPOSITS IN THE MOUNT READ VOLCANICS (from Large et al 1987)

Deposit	Million (metric tons)	Grade (%) Pb	Zn	Cu	Ag	Au
Mt Lyell (includes 14 separate deposits in the district)	147			1.3		0.4
Rosebery	19	4.9	15.7	0.8	132	3
Que River	6	7.5	13.1	0.4	190	3.5
Hellyer	15+	7	14	0.3	180	2.5
Hercules	2.3	5.7	17.8	0.4	179	2.9

PREVIOUS EXPLORATION

Exploration activities in the Elliott Bay region by BHP (1964 to 1975) and Geopeko (1977 to 1984) have been outlined in a preceeding Cyprus Report 489 (Jones 1986). The most comprehensive work was undertaken by Geopeko (see a summary by Herrmann 1985). On the basis of regional mapping, stream geochemistry and airborne geophysics a total of 34 prospects were selected for follow-up (Table 2).

TABLE 2 ELLIOTT BAY REGION - GEOPEKO PROSPECTS
(from Large et al 1987)

No of Prospects	Reason for Follow-up
3	Prospectors workings from 1900 to 1930 period
5	Outcrops of gossan or sulfides
4	Zones of sericite and chlorite alteration in a favorable geologic setting
2	Gold geochemical anomalies in stream sediments
6	Pb-Zn geochemical anomalies in stream sediments
2	Pb-Zn geochemical anomalies in bedrock
4	Airborne electromagnetic anomalies
8	Aeromagnetic anomalies

Preliminary evaluation eliminated 17 of the 34 prospects (Large et al 1987). The remainder were gridded, mapped, soil sampled and surveyed by geophysical methods. Diamond drillholes tested seven prospects. Most significant results were as follows:

Voyager 19 Rockchip sampling of two massive sulfide lenses returned 4 meters of 10.2% Pb, 17.9% Zn, 0.16% Cu, 138 g/t Ag, 0.6 g/t Au and 3 meters of 13.9% Pb, 21.9% Zn, 0.2% Cu, 680 g/t Ag, 0.8 g/t Au

Diamond drillholes designed to test continuation at depth failed to interest significant mineralization.

Voyager 33 Rockchip sampling of a trench returned 8 meters of 1.1% Pb, 0.32% Zn, 96 g/t Ag, 0.35 g/t Au, 0.23% As

Two diamond drillholes designed to test mineralization at depth intersected a breccia zone which returned 7.6 meters of 1.24% Pb, 0.89% Zn, 56 g/t Ag, 0.06 g/t Au and 0.1% As and 8 meters of 0.06%

Pb, 0.09% Zn and 2 g/t Ag

Voyager 12 Rockchip sampling of gossans returned grades up to 0.36% Cu, 0.68% Pb, 0.7% Zn, 440 g/t Ag, 265 g/t Au and 1.32% As

Gold grades averaged about 24 g/t. Diamond drilling of gossans and geophysical targets was largely unsuccessful. The best intersection was 1.6 g/t Au over 2 meters.

Voyager 24 Anomalous gold in -80 mesh then panned concentrate sediment samples led to the discovery of a stratabound gold mineralization in coarse pyroclastic rocks. Drilling revealed the pyroclastics were anomalous in gold throughout (50 to 200 ppb over widths of up to 130 meters). Higher grade intersections of 1 to 25 g/t Au over 1 meter sections occurred in places. A 3 meter section which drilled down (sub-parallel to) a narrow sphalerite-pyrite-galena-arsenopyrite-quartz vein returned 17.5 g/t Au.

Voyager 2 Drilling of an old prospect (Lewis River prospect) returned 5 meters of 2.24% Pb and 29 g/t Ag

In early 1986 Cyprus Minerals completed a DIGHEM survey over the Elliott Bay region (Appendix 1 and Cyprus Report 489). Whilst processing of the data took place Cyprus undertook a preliminary interpretation of analog data with the view to follow-up early in the 1986 field season. Field work concentrated on the area to the east of the Osmund Syncline. Line-cutting, soil sampling, ground magnetic and electromagnetic surveys were undertaken. No significant results were recorded from this work.

REGIONAL GEOLOGY

Felsic volcano-sedimentary sequences of Cambrian age at Elliott Bay are generally considered to be the southernmost extension of the Mt Read Volcanics. Debate as to which part of the Mt Read sequence is still ongoing (Large et al 1987). The stratigraphy and mineralization of the Mt Read Volcanics have been described by Corbett (1981). At Elliott Bay these rocks are referred to as the Lewis River Volcanics (White 1975). On their eastern margin the volcanics are in fault (?) contact with Precambrian metamorphics of the Tyennan Block. To the west the Lewis River Volcanics apparently pass conformably into younger Cambrian volcano-sedimentary sequences which comprise abundant fine grained sediments and rhyolitic and basic to intermediate volcanics. A geologic map at 1:25000 scale is included as Enclosure 1.

Granitoids of late Cambrian (?) age occur in the southwest and

southeast parts of the tenement. A porphyritic unit (Elliott Point Porphyry) regarded as part of the Lewis River Volcanic sequence occurs on the eastern margin of the licence.

In the central northern part of the licence (Mt Osmund area) late Cambrian to early Ordovician sediments unconformably overlie the Lewis River Volcanics. The basal parts of these sediments consist of rhyolitic volcanoclastics and shale units which pass stratigraphically upward into siliciclastic units of the Owen Conglomerate. These rocks are folded in a major north plunging syncline (Osmund Syncline).

WORK CONDUCTED BY CYPRUS - REGIONAL EXPLORATION

The main objective of this seasons regional exploration program was to ascertain the potential for gold mineralization at the margins of Cambrian intrusions. Exploration involved:

- compilation of geological and geochemical data from previous programs
- regional geological mapping of selected areas at 1:10000 scale and compilation at 1:25000 scale
- geochemical sampling of drainage systems using both -80 mesh and panned concentrate samples
- rockchip geochemical sampling
- air photographic interpretation of structure



The Tasmanian Mines Department camp at Wart Hill used during the 1986/87 field season as the base camp



Some members of the 1986/87 field season crew: L to R Eddie James, Chris Torrey, Rob Hartley, Jonathon Suppree, Matthew Overs, Trevor Coff, Marty Laan, Russel Nielsen, David Joyce and (top) Gary Lim



Interior of the Wart Hill camp



Atypical lunch, Elliott Bay

Inevitably work on individual prospects contributed information to the regional geological, geochemical and geophysical understanding of the tenement. This information is incorporated into the geological map presented as Enclosure 1.

All phases of exploration were undertaken with the aid of recently flown color air photographs at 1:10000 scale.

GEOLOGY.....

The following combines the work of Cyprus geologists with studies by White 1975, Large 1981, Lea 1985, Jackson 1985, Herrmann 1983 and Large et al 1987. Work presented here follows the nomenclature used by Large et al 1987. Differences in usage will be explained within the text. Units will be described from east to west because most writers consider that to be the younging direction. Geologic maps are presented as Figure 3 and Enclosures 1 and 2.

Precambrian (Arthur Group)

Metamorphic rocks consisting of quartzite, schist and phyllite outcrop in the far eastern part of the licence. They are part of the Tyennan Block and to date have been considered unprospective. No work was undertaken within this unit.

Cambrian

Elliott Point Porphyry

This unit occurs along the eastern margin of the Cambrian volcanic belt. It is a massive, locally chloritic and magnetite-pyrite-bearing quartz-feldspar-biotite porphyry up to 3 kilometers thick. It locally contains tonalitic and microgranitic phases. Volcanic rocks adjacent to or overlying the porphyry are variably altered to sericite, quartz-sericite, chlorite-pyrite or quartz-chlorite-pyrite-tourmaline assemblages. Quartz veins are extensively developed within volcanic rocks up to 1 kilometer

away from the porphyry.

Wart Hill and Hudson River Volcanics

Large et al, 1987 subdivide these rocks into the Hudson River Pyroclastics (east) and Wart Hill Pyroclastics (west). The boundary between the two is shown on Enclosure 1. It is not well defined but according to Large et al, 1987 marks:

- a change from dominantly chlorite altered volcanics (east) to sericite altered volcanics (west)

- a change in lithotypes - submarine rhyolitic lavas, volcaniclastics and tuffaceous sediments occur in the east whilst subaerial to shallow marine deposits of flow banded rhyolite and coarse grained pyroclastics occur in the west. Furthermore in the west tuffaceous sediments are poorly developed and there is an abundance of lensoidal bodies of rhyolitic quartz, quartz-feldspar and dacite porphyries

Mapping by Cyprus geologists has not been as comprehensive as that of Geopeko from which Large et al, 1987 drew their data. Although we agree there is a distinctive change in lithotypes from east to west we do not consider the Large et al, 1987 boundary is a true lithostratigraphic break rather it is a zone of gradational lithofacies change. Rock types transgress the boundary. Furthermore detailed mapping along the western margin of the Elliott Point Porphyry suggests sericite-quartz alteration may be as important in the Hudson River area as it is in the Wart Hill area. We therefore question the validity of the proposed boundary and combine the subgroups for the purposes of this report.

Lithotypes within the sequence generally strike north-south and dips are between 60° and 80° to the west. Sediments include greywacke-siltstone units, tuffaceous siltstone, black and grey siltstone, siliceous conglomerate and fine to coarse grained rhyolitic volcaniclastics. The difference between tuff and

volcaniclastic is difficult to define. Generally the rocks are quartz or quartz-feldspar porphyritic and locally contain lithic fragments which are strongly sericitized. A north-south trending schistocity is commonly defined by parallel alignment of sericite flakes.

Massive rhyolitic quartz, quartz-feldspar and dacite porphyries may be intrusive or extrusive.

Intrusives

Apart from the Elliott Point Porphyry to the east and massive rhyolitic and dacitic porphyries within the Wart Hill and Hudson River Volcanics there are four other discrete bodies of intrusive rock.

Two bodies lie to the south of Wart Hill and consist of porphyritic microgranite which contains euhedral phenocrysts of feldspar up to 5 centimeters long and rounded quartz phenocrysts up to 1 centimeter in diameter. Muscovite flakes are common. The granites on the south coast around Low Rocky Point and in the southeast corner of the licence are pink, coarse grained and locally porphyritic. On the wave-cut platform south of where the Osmund Fault intersects the coastline (Enclosure 1) granite and volcanic units appear to have assimilated to form a hybrid (?) rock. In this area large blocks of felsic volcanic rock remain as pendants in the roof of the granite.

Western Epiclastics

These rocks lie to the west of and are considered to conformably overlie the Wart Hill and Hudson River Volcanics (Jackson 1985). In the northern part of the tenement the Western Epiclastics are in fault contact with Late Cambrian-Early Ordovician rocks of the Waterloo Creek Group and Owen Conglomerate.

Rock types include intercalated rhyolitic volcaniclastic sandstones and rhyolitic tuffs (the Penders Pyroclastics of Jackson 1985 and Pleasant Creek Formation of Large et al, 1987), fine tuffaceous siltstones, dolomite (Sassy Creek Formation of

Jackson 1985), pyritic black shales, andesitic-basaltic volcanic lenses and locally gabbroic intrusions. This group of rocks is characterized by the abundance of felsic volcanic units intercalated with fine sediments. Andesitic-basalt volcanics and gabbros are not abundant.

Much of the exploration effort this season concentrated on follow-up of DIGHEM anomalies within this group of rocks.

Mainwaring Group
In contrast to the Western Epiclastics this group is dominated by intermediate-mafic lavas and green volcaniclastic sandstones. Black shales, siltstones, sandstones and dolomite interdigitate with volcanics. Rhyolitic volcanics are absent and gabbroic intrusions are common.

Late Cambrian - Early Ordovician

Waterloo Creek Group
Rock types include:

- coarse volcaniclastic conglomerate and coarse sandstone which contain abundant hematitic silica clasts and have a weak purple-red hematitic coloration
- fine to medium grained rhyolitic volcaniclastic sandstone
- black shales up to 300 meters thick

These rocks unconformably overlie the Wart Hill and Hudson River Volcanics.

Owen Conglomerate
In the Elliott Bay region field mapping and air photographic interpretation suggests these rocks unconformably overlie the Waterloo Creek Formation. Rock types consist of coarse quartzose sandstones, quartzose siltstones and quartz-pebble conglomerates.

Pyritic quartz sandstones occur in the basal parts of this sequence.

Jurassic

A previously unmapped, fresh dolerite presumed to be of Jurassic age forms subdued outcrop in the northeastern part of the tenement. It is considered responsible for a large magnetic anomaly in that region.

Tertiary

In the northeastern part of the tenement quartz-rich gravels infill the southern part of a northwest trending Tertiary graben (Macquarie Graben). Throughout the tenement patches of gravel overlie Paleozoic rocks. In places gravel/sand depths in excess of 1.5 meters have been recorded. More commonly a lag of rounded and angular quartz gravel up to 50 centimeters deep occurs over bedrock.

STRUCTURE/AIR PHOTOGRAPHIC INTERPRETATION.....

This section attempts to correlate an air photographic compilation of lineaments with geological features. In this report air photographic lineaments have been subdivided into three categories (Enclosure 3). These are:

- major lineaments with appreciable topographic expression and/or lateral extent. These are interpreted to be major faults

- significant lineaments with moderate topographic expression and restricted lateral extent. These are interpreted to be faults, bedding, schistosity and/or joints

- form lineaments which often have significant topographic expression but are clearly stratigraphic features (bedding) or in some places can be attributed

046

to schistosity

Form Lineaments

These predominate in the central northern part of the tenement where sediments of the Osmund Syncline outcrop. Folding of sediments is evident. Other form lineament are recognized:

- immediately east of Veridian Point where outcrops of silicified conglomerate occur with the Wart Hill and Hudson River Volcanic rocks

- immediately north of the Waterloo Creek prospect where folding of volcanic layers is evident

- in the far western part of the tenement within rocks of the Mainwaring Group and the Western Epiclastic sequence. These are thought to be attributable to laterally continuous, alternating, resistive volcanics and non-resistive shale sequences. Strike is generally northward

Significant Lineaments

Osmund Syncline Region: Within this area a number of lineament orientations are evident.

- north-northwest trending features appear to be faults which are axial planar to the synclinal axis. They tend to crenulate and truncate bedding

- east-west or east-northeast trending features appear to be relatively young crosscutting faults

- northwest trending features generally lie subparallel to major lineaments and are also attributed to relatively recent faulting. These lie subparallel to Tertiary faults at the margin of the Macquarie Graben

Mainwaring Group and Western Epiclastics: In the western part of the tenement significant lineaments generally have north to northwest trends which are probably attributable to stratigraphic features and bedding plane faults. In the Mainwaring River region crosscutting east-west, west-northwest and west-southwest structures are evident. These are attributed to faults and joint systems.

Wart Hill and Hudson River Volcanics: North to northeast trending lineaments are generally oriented subparallel to major lineaments and appear to be sympathetic faults or schistosity. For example the Osmund Fault trends northeastward from Penders prospect and swings north just west of the Waterloo Creek prospect. Significant lineaments on either side of the fault do the same. In places (notable the Lewis River grid) chlorite-pyrite alteration and arsenic-gold mineralization occurs along this fault. Tourmalinization occurs at the North Lewis prospect.

- northwest trending lineaments lie subparallel to major lineaments which truncate sediments within the Osmund Syncline or cut granites in the south. This trend is subparallel to the southwestern margin of the Macquarie Graben and is considered to represent a relatively young deformational event

- east-west trending lineaments occur mainly in the southern part of the tenement and are considered to be faults sympathetic to the major Lewis River Fault

Major Lineaments

Several distinctive lineaments are recognized.

The Osmund Fault: This extends from the coastline south of Penders prospect to the zone of massive sulfide mineralization at Wart Hill. The fault has an arcuate trace and splays occur around the nose of the Osmund Syncline. Substantial sericite and chlorite-dominated alteration occurs on or in close proximity to

the fault at Penders prospect, Voyager 19 and Wart Hill prospect.

Massive sulfide mineralization (lead-zinc) occurs within the fault at Wart Hill. Numerous porphyritic intrusions occur in splays around the nose of the Osmund Syncline and Waterloo Creek.

Lewis River Fault: This fault has been interpreted from air photography. It traverses the exploration licence in an easterly direction up the Lewis River and trends slightly north of east through the Lewis River prospect.

Gold mineralization occurs within this zone at Voyager 6 whilst lead-silver mineralization occurs at the old Lewis River prospect.

Copper Creek Fault: This structure traverses up Copper Creek and along the western side of the Osmund Syncline where it truncates bedding. Lead-silver mineralization occurs in this zone at Voyager 33.

Other major lineaments (interpreted as faults) occur. Northwest-southeast trending features cut Osmund Syncline sediments. These are thought to be related to Tertiary Graben formation to the north. One lineament in the headwaters of the Hudson River and the southwestward draining part of the Wanderer River appears to truncate Elliott Point Porphyry. It contains pyrite-galena mineralization at the North Porphyry Contact prospect and is associated with chlorite and sericitie-quartz alteration.

Conclusion

It appears mineralization, alteration and porphyrtic intrusive rocks are spacially related to major and significant faults which have been recognized as lineaments on air photos. Major structures such as the Osmund Fault may be long lived features and provide excellent conduits for mineralizing fluids.

GEOCHEMISTRY.....

Stream Sediments

A total of 269 minus 80 mesh and 285 pan concentrated stream sediment samples were collected. The bulk of the samples were collected from the eastern side of the licence where the Elliott Point Porphyry has intruded felsic volcanic rocks. Samples were also collected within and around old prospects, DIGHEM anomalies and granite contacts. Sample density was approximately 5 to 7 per square kilometer in zones of interest.

Methods: Sampling

Where possible a -80 mesh and a panned concentrate sample were collected at each site. Fine sediment was sieved while still wet in order to obtain a large -80 mesh sample. Usually the wet weight varied between 100 and 600 grams. For pan concentrated samples bed load gravel was obtained from as close as possible to bedrock by digging with a small shovel. This material was sieved through a 2 millimeter mesh into a pan which held approximately 5 kilograms. Two pan-loads (approximately 10 kilograms) of -2 millimeters material was then panned to a single concentrate which ranged in dry weight from 80 to 400 grams. The number of gold grains in the concentrate were counted and other heavy minerals noted.

Methods: Analyses

The majority of sediment samples were assayed at Analabs in Burnie for copper, lead, zinc, silver, arsenic and gold by the following methods:

Cu, Pb, Zn, Ag	AAS (lab code 101)
As	cold vapor generation/AAS (lab code 114)
Au	Fire Assay 30 gram charge with AAS finish (lab code 309)

A number of samples were assayed by Analytical Services (WA) Pty Ltd in Perth for gold, platinium, palladium, ruthenium, rhodium, iridium, osmium, copper, lead, zinc, nickel, cobalt and chromium. Methods are as follows:

Au, Pt, Pd, Ru Rh, Ir, Os	have been determined by Fire Assay of the sample (in new pots) using nickel sulfide as the collection media. The platinoids have been recovered from the nickel sulfide and analyzed by ICP-Mass Spectrometry
Cu, Pb, Zn, Ni Co	have been brought into solution with a mixed acid digest. This digest procedure approaches total extraction. The digest has been analyzed by atomic absorption spectrophotometry
Cr	has been brought into solution with a mixed acid digest. This digest procedure approaches total extraction. The digest has been analyzed by inductively coupled plasma emission spectrophotometry

Rockchips

A total of 309 rockchip samples were submitted for analysis of copper, lead, zinc, silver, arsenic and gold. Analytical techniques are the same as those for sediments with the exception of gold which was fire assayed using a 50 gram charge with and AAS finish (Laboratory Code 313).

Results

This section summarizes results of this season's sediment and rockchip sampling program and presents a regional synthesis. Results are discussed with respect to individual prospects in a separate section. Results of -80 mesh samples are presented on

Enclosures 5 to 10. Results of panned concentrate samples are presented on Enclosures 11 to 16. Gold grain counts, gold values for both sediment sample types and rockchip results are presented on Enclosure 17 to 22. Anomalous levels in sediment samples are listed in Table 3. Laboratory assalytical result sheets for all samples taken are included as Appendix 7.

TABLE 3 LEVELS OF ANOMALISM IN STREAM SEDIMENT SAMPLES

	-80 Mesh			Panned Concentrates		
	Weak	Moderate	Strong	Weak	Moderate	Strong
Copper	10 -20	21 - 35	> 35	10-20	21- 35	> 35
Lead	30 -50	51 -100	>100	30-50	51-100	>100
Zinc	30 -50	51 -100	>100	30-50	51-100	>100
Silver	1 - 5		> 5	1- 5		> 5
Arsenic	5 -10	11 - 20	> 20	5-10	11- 20	> 20
Gold	0.1- 0.29	0.3- 0.6	> 0.6	20-80	81-200	>200
	Number of grains in Au Grain Count			10-15	16-25	> 25

Values in ppm

-80 Mesh Sediment Samples

Copper: Copper values were generally low (usually <15 ppm) in felsic and sedimentary sequences. Where streams drain mafic rocks (for example the Mainwaring Group or Jurassic Dolerite) values of up to 95 ppm were recorded. This has been attributed to disseminated native copper, chalcopyrite and the generally high copper content of mafic rocks. Anomalous values of up to 80 ppm were obtained from streams draining the North Lewis mineralized zone.

Lead: Several anomalies are recognized:

- the North Porphyry Contact prospect contains values up to 65 ppm in streams. Anomalism is attributed to small quartz-chlorite-galena veins

- the North Lewis mineralized zone contains 30 to 50 ppm lead in streams

- the Porphyry Dolerite Contact prospect returned up to 40 ppm in streams

- values up to 115 ppm in streams draining the Voyager 24 prospect reflect the presence of quartz-galena-sphalerite-calcite veins

Zinc: Several anomalies are recognized:

- a 335 ppm value was obtained from a stream draining the old Lewis River or Voyager 2 (Geopeko) prospect. Values of up to 650 ppm zinc were obtained from rockchips in this area

- streams draining the Porphyry Dolerite Contact zone contain values up to 60 ppm
- mafic rocks from within the Western Epiclastics or Mainwaring Group return stream values up to 120 ppm

- a value of 85 ppm at the Voyager 24 prospect probably has a similar source as lead, ie mineralized veins

Silver: No silver values were considered significantly anomalous.

Arsenic: Anomalous arsenic values occur in streams draining the old Lewis River prospect (Voyager 2) and the North Lewis mineralized zone. In the latter values of up to 210 ppm are recorded and are coincident with copper and lead anomalies. Rockchips from this area returned in excess of 1% arsenic. Rockchips from the old Lewis River prospect (Voyager 2) returned up to 2800 ppm arsenic. Weakly anomalous arsenic values (5 to 10 ppm range) occur in streams draining westward from the porphyry/volcanic contact for up to 4 kilometers north of the North Lewis mineralized zone. In the Lewis River grid area

anomalous rockchip samples (up to 5.5% arsenic) from the headwaters of Barrel Creek are not reflected in stream geochemistry in that area.

Panned Concentrate Samples

As a general statement it was discovered pan concentrating of samples led to an enhancement of gold, zinc and locally silver and lead values and a depletion of copper, arsenic and locally lead values when compared to the equivalent -80 mesh samples. Levels of relative anomalism in panned concentrates are not markedly different from -80 mesh samples with the notable exception of gold and in places silver and zinc (Table 3).

Copper: Like the -80 mesh samples copper values are elevated in streams which drain mafic rocks in the Mainwaring Group and Jurassic Dolerite (80 and 40 ppm respectively). Similarly streams draining the North Lewis mineralized zone contain up to 95 ppm copper.

Lead: Two anomalous zones are recognized:

- a value of 645 ppm lead was obtained in a stream at the North Porphyry contact prospect and corresponds to a value of 65 ppm in -80 mesh. A weak dispersion train occurs for up to 1.5 kilometers downstream. The source rocks are small quartz-chlorite-galena veins

- a value of 85 ppm was obtained from a sample in the vicinity of the Voyager 3 prospect (Geopeko). This value was accompanied by anomalous zinc (240 ppm). The area displays weak zinc and copper anomalism. Geopeko identified galena-sphalerite quartz and chalcopyrite-malachite quartz veins in the area

Zinc: Apart from the abovementioned zone of anomalism at Voyager 3 other zinc-rich drainages were identified:

- Enclosure 14 - 47500N:84500E. Though the zinc anomaly here is weak it has accompanying weak lead, copper and gold anomalies. Streams in this area drain the volcanic/porphyry contact and zones of numerous quartz-sericite veins

- values are elevated in streams which drain mafic rocks of the Mainwaring Group and Jurassic Dolerite (up to 70 ppm)

- anomalous values up to 330 ppm occur within the granite south of Voyager 6. No apparent source was identified

- values up to 135 ppm are recorded from a zone of argillites and mafic tuffs of the Western Epiclastic sequence (Enclosure 15 44500N:77000E)

- a value of 60 ppm is recorded in a stream draining the eastern part of the Lewis River grid. Though no apparent source has been identified soil values on the eastern extremity of the grid have returned up to 4350 ppm zinc

Silver: Anomalies recognized include:

- a value of 10.5 ppm in a stream that drains southwestward from the old Lewis River prospect. This is a lead-silver prospect

- a value of 46 ppm was recorded from a stream near the Penders prospect which drains the granite/volcanic contact. This value corresponds to a value of 365.5 ppm gold. Mineralization was located upstream in highly sheared rocks. It consisted of quartz-pyrite $\pm$ bornite $\pm$ chalcopyrite veins with chloritic halos. Rockchip samples (Enclosure 21) did not return anomalous silver or gold

- a value of 6 ppm was recorded from the North Porphyry Contact prospect and corresponds to a value of 645 ppm lead

- values of up to 25 ppm silver were obtained from the Mt Osmund West area. The 25 ppm value corresponds with a value of 173.3 ppm gold

It would appear anomalous silver is locally associated with anomalous gold or lead in panned concentrates. This is attributed to the significant porportions of silver in gold and galena. One notable exception to this generalization is the sample taken from Voyager 24 which contains high gold but no silver.

Arsenic: Arsenic values in panned concentrates are generally lower than in -80 mesh. Zones of anomalism include:

- the Wanderer South prospect where marginally elevated values may be attributed to sparce arsenopyrite in black shales

- the old Lewis River prospect and the North Lewis prospect returned anomalous arsenic values but were generally of a lower tenor compared to -80 mesh samples (cf 47 ppm and 83 ppm in -80 mesh)

Gold - Panned Concentrates, -80 Mesh and Grain Counts

Results of the above three sampling techniques are presented on Enclosures 17 to 22 in conjunction with results of rockchip sampling. Because laboratory turnaround of results was relatively slow panning of sediment and visual identification of gold grains was utilized as a basic prospecting technique. Variations in sample size, sample trap sites, individual sampling techniques and concentration factors make the comparison of absolute gold values in panned concentrates difficult to interpret. We have consequently combined all our sampling techniques (-80 mesh for fine gold and panned concentrates and visual counts for coarse gold) to define areas of gold anomalism. In general areas of

interest are those that contain high grain counts and high -80 mesh values. High grain counts are almost everywhere matched by high panned concentrate values. Zones of gold anomalism are listed below.

- **Headwaters of Barrel Creek and western branch of Little Rocky River** - referred to as the Lewis River grid. Gold grain counts in the area range from 3 to 45 with the average approximately 18 to 20. Results from panned concentrates returned values up to 95 ppm which corresponds to a grain count of 30. The average value in the area is approximately 20 to 25 ppm gold. Minus 80 mesh samples return values up to 2.7 g/t and a dispersion train 1.5 kilometers long occurs in the Little Rocky River drainage. Rockchip samples in the area returned up to 5.55% arsenic and 0.64 ppm gold in small gossans. The area was gridded for detailed study.

- One sample was collected at a site previously identified as anomalous within the **Voyager 24** prospect (Geopeko). It returned a highly anomalous 500.8 ppm in panned concentrate, 2.02 ppm in -80 mesh and had a grain count of 25. Stratabound gold has been identified by Geopeko at this prospect.

- **Waterloo Creek:** Samples from this zone returned relatively low values in panned concentrates (22.27 ppm gold) and had low grain counts (9) but returned anomalous -80 mesh values of up to 1.97 ppm gold. Samples occurred in stream which drained a number of old workings on quartz reefs. The area was gridded for detailed study.

- **Osmund West:** Streams running parallel to DIGHEM anomalies identified on Enclosure 8 contained anomalous grain counts of up to 25 corresponding to analysis of 173.3 ppm gold. Minus 80 mesh samples returned up to 0.36 ppm. No apparent source was identified due to the largely impenetrable bush in the area. From the relative position of the anomalies in the stratigraphic sequence it is postulated the source rocks

lie within the same horizon which contains massive sulfide pods at Wart Hill. From Geopeko sampling it is known that gold values of up to 1 ppm in -80 mesh samples occur in streams draining the Wart Hill alteration zone.

- **Voyager 6 - Granite Zone:** Immediately south of the Voyager 6 prospect (Enclosure 21 43500N:79500E) anomalous gold occurs in -80 mesh samples (up to 0.9 ppm). Grain counts and panned concentrate values are low up to 22.6 ppm). It appears fine gold is anomalous in the westernmost stream sampled and has a dispersion train of approximately 0.5 kilometers. This stream drains the inferred southern extension of the Osmund Fault Zone. Outcrop in the area is minimal and no source rocks were recognized. West of Voyager 6 (43200N:78000E) where granite is in contact with felsic volcanics one sample returned a weakly anomalous grain count of 12 with a corresponding analysis of 41.7 ppm and 0.07 ppm gold in -80 mesh.

- **Penders:** A highly anomalous grain count of 50 (365 ppm gold) and corresponding 0.16 ppm gold in -80 mesh occur in a stream draining the volcanic/granite contact (Enclosure 21 42000N:77700E). Immediately south of this another stream also draining the contact returned 0.9 ppm gold in -80 mesh. Pyrite-rich veins located upstream did not contain anomalous gold.

- **Hudson River:** A number of samples were collected from tributaries draining into the Hudson River north of the North Lewis River mineralized zone. Samples returned anomalous grain counts and panned concentrate analyses (up to 20 and 89.33 ppm gold respectively) however none contained anomalous gold in -80 mesh. Coarse gold appears to have its source in rocks near the contact between Elliott Point Porphyry and felsic volcanic rocks. Arsenic is also elevated in this zone. No mineralization has been identified here, however the zone is generally characterized by intense quartz-sericite veins. As yet sampling of veins has not

yielded anomalous gold. A spurious value of 456.1 ppm gold corresponds to an extremely low grain count of 4 (Enclosure 20 52500N:85300E). This discrepency has not been explained.

In the upper reaches of the Hudson River and within the northward draining tributaries of the Wanderer River a heavy black mineral occurred and was often associated with high gold contents. This mineral appeared to be abundant in Tertiary lag gravels and alluvium. Mineralographic identification by Amdel (Appendix 2) indicates the mineral is rutile. The occurrence of gold with this mineral suggests the gold source at least in part may be the Tertiary gravels.

- **Wooloomooloo Creek:** Follow-up of anomalous gold in streams (Geopeko -80 mesh sampling) and a DIGHEM anomaly (Cyprus survey) returned a highly anomalous 9.3 ppm gold in -80 mesh. This result was accompanied by a grain count of 3 and a panned concentrate analysis of 4.9 ppm. Other values in the area were not considered anomalous and therefore the value of 9.3 ppm was considered suspect. Resampling of the same site returned no anomalous gold. Localized anomalous grain counts and panned concentrate values up to 130 ppm gold occur in the upper parts of Wooloomooloo Creek, however no accompanying -80 mesh and lack of consistency in values was considered discouraging.

- **North Lewis River Prospect:** Probably one of the most discouraging features of the program was that the known gold mineralization at the North Lewis prospect gave no response in either -80 mesh or panned concentrate samples.

Rockchip Samples

Zones containing anomalous values are listed below. Rock descriptions and assays are presented in Appendix 7A or are detailed in the section describing individual prospects.

- **North Lewis River:** Values of up to 1.15% copper, 4.4% lead, 2.85% zinc, 232 ppm silver, 3.05% arsenic and 24.3 ppm gold were recorded from gossans

- **Lewis River:** Values up to 610 ppm copper, 500 ppm lead, 610 ppm zinc, 2.5 ppm silver, 5.55% arsenic and 0.64 ppm gold were recorded from gossans

- **Old Lewis River prospect (Voyager 2):** Sampling of siderite-rich pyrite-chalcopyrite-galena bearing veinlets and ironstone rocks on the prospect returned values up to 2.04% copper, 1750 ppm lead, 650 ppm zinc, 180 ppm silver, 2800 ppm arsenic and 0.45 ppm gold

- **Elliott Bay Coastline (from 83000E to 85000E):** Sampling of quartz or quartz-tourmaline-chlorite veins with pyrite, arsenopyrite and chalcopyrite returned up to 4.28% copper, 2825 ppm lead, 5850 ppm zinc, 28 ppm silver, 400 ppm arsenic and 0.05 ppm gold (Enclosure 22)

- **Voyager 6:** Values up to 1150 ppm copper, 3700 ppm lead, 610 ppm zinc, 57 ppm silver, 37 ppm arsenic and 7.25 ppm gold were returned from small quartz-gossan veins and iron-stained felsic volcanics

- **Penders:** Highest values were obtained from sulfide pods (2.65% copper, 245 ppm lead, 3100 ppm zinc, 70 ppm silver, 550 ppm arsenic and 0.675 ppm gold). Quartz-chlorite $\pm$ malachite $\pm$ chalcopyrite veins in the area returned up to 8400 ppm copper but were not anomalous in other elements

- **Mt Ósmund West:** Resampling of silicified and sheared shales in trench samples at Voyager 33 returned values of up to 2500 ppm copper, 1875 ppm lead, 545 ppm zinc, 52 ppm silver, 7400 ppm arsenic and 0.045 ppm gold (Enclosure 19 52600N:78200E)

- **Wart Hill:** One sample of massive sulfide from this prospect returned 6.6% lead, 39.5% zinc, 0.62% copper, 206 ppm silver, 260 ppm arsenic and 0.97 ppm gold

Regional Synthesis

Sampling of streams, rockchip and soils by Cyprus has to date delineated two zones of geochemical anomalism.

Zone 1: Elliott Point Porphyry/Felsic Volcanic Contact (Gold/Arsenic)

The area is defined as a corridor of rock approximately 1 to 1.5 kilometers wide which extends from the headwaters of Barrel Creek, northward through the Lewis River grid, the Lewis River prospect (Voyager 2) and the North Lewis grid to the point where the Hudson River intersects the contact between Elliott Point Porphyry and felsic volcanics. The zone is characterized by:

- sericite-quartz alteration and veining adjacent to the porphyry in the area north of the North Lewis grid
- quartz-chlorite-pyrite-tourmaline alteration and veining of the North Lewis grid
- chlorite alteration with siderite-pyrite-chalcopyrite-galena at the old Lewis River prospect (Voyager 2)
- chlorite-pyrite alteration on the Lewis River grid and the headwaters of Barrel Creek

Geochemically the area is anomalous in gold and arsenic in rocks and/or sediment samples. Elevated base metals (copper, lead, zinc) values in streams and rockchips are associated with highly altered rocks and mineralization. The zone is enigmatic. Best gold anomalism in streams occurs in the southern part where no apparent source is recognized. In this area arsenic in rockchips is elevated (up to 5.55%) but no anomalous arsenic occurs in streams. In contrast gold mineralization occuring in rocks in

association with arsenic (and copper, lead, zinc, silver) in the North Lewis area is not recognized in streams whereas arsenic anomalism is recognized.

The area within the corridor that is considered to be most geochemically anomalous (Lewis River grid - old Lewis River prospect - North Lewis grid) lies entirely within volcano-sedimentary units of the Wart Hill and Hudson River Volcanics. The area is interpreted to be either underlain by, or on the margins of, the Elliott Point Porphyry. The area is also characterized by the occurrence of a number of large albeit interpreted faults (eg the Lewis River Fault). In many places these faults are recognized merely as linear zones of chloritized-iron stained outcrops which are anomalous in arsenic.

Zone 2: Granite Contacts (Gold)

Several areas of anomalous gold mineralization are recognized at granite contacts. These are outlined as follows:

- Magnetic Anomaly 3 - soil samples on the margin of the granite return up to 0.03 ppm gold and anomalous arsenic (10 ppm), copper (5100 ppm), lead (100 ppm) and elevated zinc. Stream draining this anomaly contain 9.9 ppm gold in panned concentrates

- Voyager 6 - anomalous gold (up to 7.25 ppm) occurs in rocks at the granite contact. Streams returned up to 0.9 ppm in -80 mesh from within the granite

- Penders prospect - streams draining the western side of the granite in the Low Rocky Point region contain anomalous gold in both panned concentrates and -80 mesh samples

- Voyager 9 - Geopeko have documented anomalous gold in panned concentrates in streams draining the porphyritic granite contact 8 kilometers east of Veridian Point

Most zones of anomalism at granite contacts are characterized by chlorite and/or sericite alteration, complex magnetics (due to veins of magnetite (?)) and locally intense shearing.

Sampling of prospects on the western side of the tenement has been relatively restricted to old prospects (eg Voyager 24) or DIGHEM anomalies. Further work is required before a synthesis of this area can be made.

WORK CONDUCTED BY CYPRUS - PROSPECT EVALUATION

Prospect evaluation this season consisted of four parts:

- follow-up of DIGHEM anomalies
- evaluation of old prospects primarily for gold potential but also for polymetallic massive sulfides
- follow-up of air magnetic anomalies
- follow-up of geological and geochemical anomalies resulting from the Cyprus stream and rockchip sampling program

The localities of prospects are presented on Enclosure 23 at 1:25000 scale. Geology of individual prospects is presented at 1:10000 and 1:5000 scales in foldout figures. The legend for all

maps is presented as Figure 3.

DIGHEM anomalies are numbered and given an order of priority (Appendix 1). Anomalies were ground located using a frequency domain, horizontal loop electromagnetic system (MAXMIN II). A standard transmitter/ receiver separation of 100 meters was adopted. Data from three frequencies (222, 888 and 3555 Hz) were recorded and slope corrected. In addition to these data a 'normalized' plot of 3555 Hz minus 222 Hz is also presented.

Magnetic anomalies considered to be of interest were identified from the Mines Department 1:50000 scale air magnetic maps and/or DIGHEM magnetic maps at 1:10000 scale. All grids and MAXMIN traverse lines were surveyed for magnetic susceptibility. Proton magnetometers with a base station recorder were used.

C-horizon soil and rockchip samples were assayed for copper, lead, zinc, silver, arsenic and gold by Analabs in Burnie. Analytical methods for soils were the same as those outlined for stream sediments with the exception that in some areas AAS was used for gold. In rock samples elements were also analyzed by the same techniques with the exception of gold which required fire assay with a 50 gram charge (code 313). Platinum group elements were analyzed by Australian Analytical Services (WA) - methods are outlined in the previous section. All analyses are included in Appendix 7.

DIGHEM ANOMALIES.....

Wanderer South

Previous Work

The area has been covered by airborne magnetics and DIGHEM but no previous ground work. The Cyprus Urquart South Grid is located west of Wanderer South in EL 37/83 (Sorell Peninsula project).

085 892066

MAXMIN surveying
at Elliott Bay



Receiver



Transmitter

066

892067

TERTIARY

1 — Quartzose Gravel

JURASSIC

2 (49) — Dolerite

LATE CAMBRIAN – EARLY ORDOVICIAN

3 — Owen Conglomerate – undifferentiated
3a — – coarse quartzose sandstone
3b (2) — – siltstone

4 (6) — Waterloo Creek Group – undifferentiated
4a (8) — – hematitic volcaniclastic conglomerate
4b (9) — – tuffaceous coarse sandstone and grit
4c (10) — – black shale ± pyrite
4d (11) — – fine–med. grained rhyolitic volcaniclastic

CAMBRIAN – MT. READ VOLCANICS

5 (42) — Wart Hill and Hudson River Volcanics – undifferentiated
5a (50) — – fine to med. grained rhyolitic volcaniclastic
5b (51) — – rhyolitic quartz–feldspar porphyry (lavas and intrusives)
5c (48) — – dacitic porphyry
5d (47) — – coarse rhyolitic volcaniclastic
5e (44) — – siltstone
5f (41) — – siliceous conglomerate
5g (40) — – greywacke and siltstone

CAMBRIAN INTRUSIVES

6 (26) — Elliott Point Porphyry
7 (20) — Granite
8 (15) — Microgranite
9 (17) — Porphyritic Microgranite

CAMBRIAN – WESTERN EPICLASTICS

10 (23) — Western Epiclastics – undifferentiated
10a (25) — – andesitic – basaltic volcanics
10b (60) — – brown–grey tuffaceous siltstone and quartzoze conglomerate
10c (36) — – black shale ± pyrite
10d (68) — – fine to medium grained rhyolitic volcanics
10e (69) — – gabbro
10f (70) — – coarse rhyolitic volcaniclastic sandstone

CAMBRIAN – MAINWARING GROUP

11 — Mainwaring Group – undifferentiated
11a — – gabbro
11b — – andesite–basaltic volcanics
11c — – dolomite
11d — – black shale ± pyrite
11e (37) — – siltstone and sandstone

PRECAMBRIAN

12 (55) — Metamorphics – quartzite, schist and phyllite

——— Geological contact

Unconformity.

—— Fault

60; Strike and dip of schistosity

60; Strike and dip of bedding
– facing indicated

Plunging syncline

Old workings

ALTERATION – Pervasive and vein controlled

Chlorite – magnetite

Sericite

Sericite – quartz

S S S — Chlorite – pyrite

Quartz – chlorite – pyrite – tourmaline

Quartz – sericite – talc ± chlorite

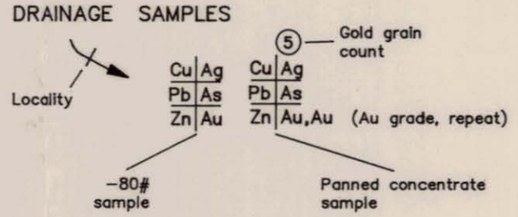
qc qc qc — Quartz – chlorite

Quartz vein

Alteration boundary

GEOCHEMISTRY

DRAINAGE SAMPLES



ROCK CHIP SAMPLES

△ 202567 — Sample location and number

△ 202569
Cu Ag
Pb As
Zn Au
— Sample location number and assays

△ 202569 TS — Thin section sample

V33/1 — Diamond drill hole location

DETECTION LIMITS (ppm)

	Cu	Pb	Zn	Ag	As	Au	
Rocks	5	5	5	0.5	1	0.005	
–80# plus panned concentrates	5	5	5	0.5	1	0.008	
Soils	5	5	5	0.5	1	0.01 0.008	(AAS) (Fire assay)

– = Below limit of detection

5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

L E G E N D

DRAWN BY :
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.
SCALE 1 : METRES
FIG. 3

Introduction

Field work this season was aimed at assessing several DIGHEM anomalies in Cambrian volcanics and sediments. Wanderer South is located in the northwest sector of EL 40/85 (Enclosure 23) at the headwaters of tributaries of the Wanderer and Urquart Rivers. Access is via two helipads (5262400N:77400E and 5261650N:78100E) and cut access tracks. The area is covered by impenetrable vegetation (Plate 1). Average line cutting progress was approximately 300 meters per day.

Gridding

A total of 3.15 kilometers of lines and 1 kilometer of access tracks have been cut. Lines are numbered 5 to 7 (Enclosure 23).

Geology

Outcrop is poor but soil cover is usually less than 5 centimeters thick. Lithologies can be mapped from bedrock cuttings in auger samples. Structural trends in the Cambrian and Ordovician are north-northeast and steeply dipping (Figure 4, Table 3).

The Cambrian can be divided into:

- Western Epiclastics, a sequence dominated by fine-medium grained rhyolitic volcaniclastics with lenses of andesitic-basaltic volcanics

- Mainwaring Group, an alternating sequence of andesitic-basic volcanics and black pyrite shales. Gabbroic intrusives are common in the volcanics

A variety of types of mineralization occur in the grid:

- pyritic shales at 900-950W on Line 6 and 425-460W on Line 5. These are associated with the strongest MAXMIN response

- disseminated fine pyrite in rhyolitic volcaniclastics at 700W on Line 6, sample 171415



PLATE 1 Wanderer South - Line 5; 200W (Approx). Wet sclerophyll forest with impenetrable baera understory. This vegetation is typical of the Western Epiclastics.

892070

76000mE.

77000mE.

78000mE.

79000mE.

62000mN.

61000mN.

LINE 5

LINE 6

LINE 7

1000W

1600W

500W

00

171434 171433 171432 171430 171431

171418

171417 171416 171419 171415 171413 171414

11b 11d 10c 10 10a 3a 10d

E.L. 40 / 85

5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.	
ELLIOTT BAY – E.L. 40/85	DRAWN BY : R.P.
	DRAFTSMAN : T.G.D.S.
	DATE : June '87
	REVISIONS :
WANDERER SOUTH GEOLOGY	
	FILE No.
SCALE 1:10,000 (100 0 100 200 METRES)	FIG. 4

069

070

- quartz pyrite veining associated with clay-rich soils at 825W on Line 5

- quartz epidote veining and minor native copper in basic volcanics at 1480W on Line 6

- gabbroic intrusives with disseminated pyrrhotite

- ilmenite sands in streams draining a shale/basic volcanic contact at 1050W on Line 6 and at 550W on Line 5. Ilmenite was identified by microprobe (Appendix 2)

Stream Geochemistry

A total of 13 pan concentrate/-80 mesh sites were sampled (Figure 4). The best gold values were 0.22 ppm in pan concentrates and 0.13 ppm in -80 mesh. Both samples were collected from streams draining quartz-epidote veined basic volcanics with native copper located on the western end of Line 6.

Maximum base metal values in -80 mesh samples were copper 35 ppm, lead 20 ppm and zinc 65 ppm. Pan concentrates returned similar values. These barely anomalous streams drain basic volcanic lenses in the southeast in the vicinity of Line 7.

Soil Geochemistry

The B/C-horizon was consistently sampled throughout the grid at 25 meter spacings (Enclosures 24 to 26). All gold values are <0.01 ppm. Anomalous copper (375 ppm) and arsenic (130 ppm) reflect lithological units. Copper occurs within the basic volcanics and arsenic in pyritic shales.

Rock Geochemistry

There is limited exposure for rockchip sampling. Three samples assayed returned <0.008 ppm gold. Maximum base metal values were copper 145 ppm, lead 15 ppm and zinc 45 ppm. A clay soil containing abundant quartz pyrite fragments assayed 100-300 ppm copper, lead and zinc with gold <0.008 ppm (Appendix 7).

071 892072



PLATE 2 Wanderer South - Line 5; 600W. Temperate rainforest. This vegetation is typical of the basic-intermediate volcanics of the Mainwaring Group.



PLATE 2A Sheared rhyodacite crystal-lithic tuff. Grey partings are limonitized biotite flakes. Magnetite is common (Appendix 4, sample 216118).

Geophysics

Both magnetics and MAXMIN anomalies highlight lithological units. Black pyritic shales at 800-850W on Line 6 and at 425-475W on Line 5 are associated with strong EM responses. Magnetics have a more varied response over the basic-intermediate volcanics; this is probably due to localized pyrrhotite in gabbros and magnetite in volcanics (Enclosures 24 to 26).

Conclusions

The DIGHEM anomalies have been adequately located and tested and are not associated with significant mineralization. Quartz sulfide veins with anomalous gold at Wanderer North do not appear to strike south into this grid.

Recommendations

- assay stream sediment data for platinum group elements
- integrate the Urquart South data and unexplained stream gold anomalies occuring near the boundaries of EL 40/85 and 37/83

TABLE 4 WANDERER SOUTH - GEOLOGIC SAMPLE DESCRIPTIONS

Sample	Description (no samples assayed)
171413	Fine-medium grained, grey-green volcaniclastic
171414	Fine chloritized sediment - basic/intermediate volcanic
171415	Volcaniclastic: medium grained quartz feldspar phyric, 5% fine disseminated pyrite
171416	Intermediate volcanic, lava? with epidote quartz veining
171417	Volcaniclastic, fine grained, green-maroon, derived from intermediate/basic volcanics. Epidote veining with minor native copper
171418	Grey silstone and medium grained volcaniclastic (quartz feldspar crystal and lithics)
171419	Volcaniclastic float blocks, medium grained

Python Pit

Previous Work

During the previous season a line was cut westward through dense rain forest from the old Voyager 28 prospect (Enclosure 23) in order to intercept a group of DIGHEM anomalies identified on analog data. Abrupt cessation of that field season curtailed geochemical and geophysical surveys. Computer processed data effectively moved the anomalies further to the north and west. This season further line cutting 500 meters to the north and 1000 meters westward intercepted the anomaly.

Geology

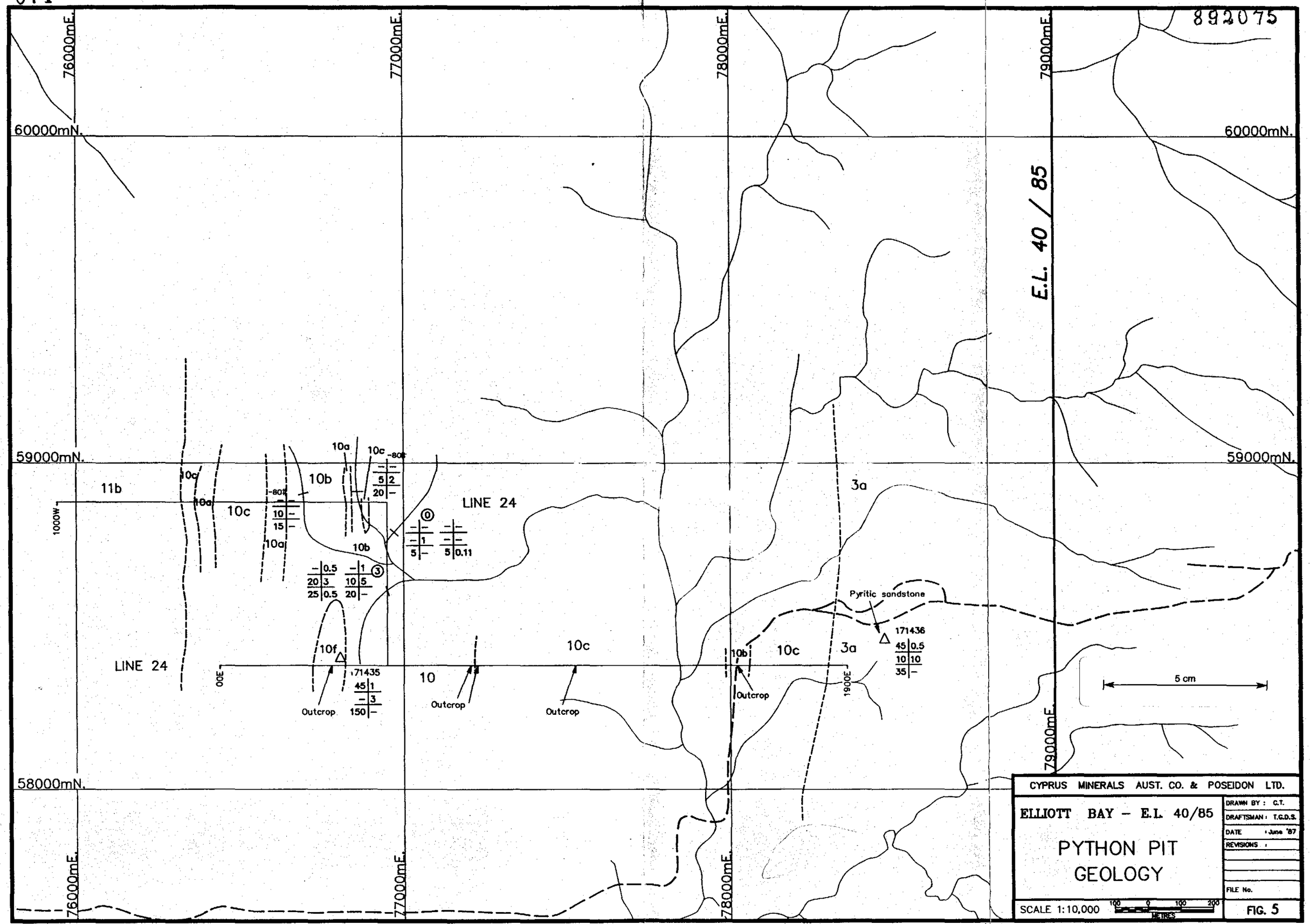
Rock types identified from rockchips in soil samples include andesitic-basaltic volcanics, tuffaceous siltstones and black pyritic shales of the Western Epiclastic sequence and andesitic-basaltic rocks of the Mainwaring Group (Figure 5). The only mineralization identified consisted of pyrite and minor arsenopyrite (sulfide up to 10%) which occurred in black shale units.

Stream Geochemistry

Four -80 mesh and two panned concentrate samples were collected from streams in the area (Figure 5). No results were considered anomalous. It was noted abundant ilmenite sand occurred in pan concentrated samples.

Soil Geochemistry

A total of 41 C-horizon soil samples were collected at 25 meter intervals along Line 23 (Enclosure 27). Peak values were 200 ppm copper, 35 ppm lead, 150 ppm zinc, 42 ppm arsenic and 0.65 ppm gold. Silver was below detection in all samples. Erratic but locally anomalous copper, lead, zinc and arsenic occur in pyritic black shales. A single highly anomalous gold value (0.65 ppm) also occurs in black shale. Copper is also elevated within andesitic-basaltic rocks of the Mainwaring Group (up to 200 ppm). A characteristic feature of black shale units is arsenic anomalism (up to 42 ppm).


892075
76000mE.
77000mE.
78000mE.
79000mE.
60000mN.
59000mN.
58000mN.
E.L. 40 / 85
11b
10c
10a
10b
10f
10
3a
LINE 24
1000W
00E
1900E
Outcrop
Pyritic sandstone
171435
171436
5 cm
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.
ELLIOTT BAY – E.L. 40/85
PYTHON PIT
GEOLOGY
DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.
SCALE 1:10,000
METRES
FIG. 5

Rock Geochemistry

Outcrop is sparce in the area of electromagnetic anomalism. No samples were collected. Further eastward samples of pyritic sandstone in the basal part of the Ordovician sequence returned low values (Figure 5).

Geophysics

A magnetic profile (Enclosure 27) clearly marks the boundary between the sediment dominated Western Epiclastic sequence and the mafic volcanics of the Mainwaring Group. The boundary which occurs at approximately 265W is marked by a rapid elevation in magnetic susceptibility westwards. MAXMIN profiles indicate a weak conductor centered at 500W coincident with pyritic black shale.

Conclusions and Recommendations

The DIGHEM anomaly has been located and is attributed to pyritic black shale units near the western margin of the Western Epiclastic sequence. No further work is recommended.

Mt Osmund West

Previous Work

The DIGHEM anomalies outlined in the Cyprus survey here referred to as Mt Osmund West (Enclosure 23) are located on the extreme western margin of a regional grid constructed by Geopeko for their IP surveys. The southern most DIGHEM anomaly occurs 100 meters to the north and slightly west of the Voyager 33 prospect. At Voyager 33 Geopeko discovered a mineralized breccia-fault zone which contains 8 meters of 1.1% lead, 0.32% zinc, 96 g/t silver and 0.23% arsenic in trench samples. Two diamond drillholes intercepted the same zone at depth and returned 7.6 meters of 1.24% lead, 0.8% zinc, 56 g/t silver, 0.06 g/t gold and 0.10% arsenic and 8 meters of 0.06% lead, 0.09% zinc and 2 g/t silver. Mineralization is hosted in a silicified fault breccia within black shales and tuffaceous siltstones. Quartz-carbonate veins with coarse sphalerite, galena, pyrite and arsenopyrite occur in core and grade up to 0.76% lead, 1.55% zinc and 16 g/t silver.

Introduction

The DIGHEM anomalies investigated occur in two groups (Enclosure 23). The southern group lie north and west of Voyager 33 while the northernmost group lie close to the postulated contact between the Western Epiclastic sequence and rocks of the Waterloo Creek Group.

Gridding

Two Geopeko grid lines (14200N and 14600N) were resurveyed and extended 200 meters westwards. One 500 meter line was cut over the northern most group of anomalies (Line 25).

Geology

The oldest rocks in the area appear to be rhyolitic porphyries of the Wart Hill and Hudson River Volcanics (Figure 6). Southeast of the Copper Creek Fault these are conformably overlain by tuffaceous siltstones and conglomerates of the Western Epiclastic sequence. To the north the porphyries are in contact with an in-faulted block of Late Cambrian-Early Ordovician sandstones and conglomerates of the Waterloo Creek Group. To the east the Waterloo Creek Group unconformably overlies the rhyolite porphyries.

On the northern end of the Copper Creek Fault a northward trending fault splay separates rocks of the Western Epiclastic sequence from the Waterloo Creek Group and forms a major continuous structure on the eastern side of the Osmund Syncline. The mineralization at Voyager 33 occurs within this splay. The DIGHEM anomalies occur west of this splay within rock of the Western Epilcastic sequence (Enclosures 28 to 30). Outcrop on Lines 14200N, 14600N and Line 25 was extremely poor. Mapping of rock in soil sample holes was necessary except in creek beds. The rocks on the lines were dominated by grey-black shale containing locally abundant pyrite and fine tuffaceous siltstones. In places a highly sheared sandstone with light grey-black partings occurs. According to petrographic work these represent altered magnetite streaks (Appendix 4).

At one sample site (14200N:8650E) red-brown soils may represent oxidized sulfide-bearing material. Quartz veins containing minor galena and sphalerite occur locally (eg sample 171979).

Stream Sediment Geochemistry

The streams draining the DIGHEM anomalies contain abundant visible gold in panned concentrates (up to 25 grains) and return values up to 173.3 ppm gold and 25 ppm silver. One -80 mesh sample also returned anomalous gold (0.36 ppm). Copper, lead, zinc and arsenic are not considered to be anomalous (Figure 6).

Rockchip Geochemistry

Five rockchip samples were submitted for analyses. Descriptions and assays are listed below in ppm.

Sample	Description	Cu	Pb	Zn	Ag	As	Au
216099	Ferricrete on quartz and limonitic quartz	1600	1875	545	52	7400	0.015
216100	Silicified black shale	2800	215	190	43	86	0.045
171977	Laminated black carbonaceous-pyrite shale	10	5	25	0.5	5	-
171978	Sericite altered, quartz stock-worked coarse volcaniclastic sandstone	5	-	15	-	1	-
171979	Quartz vein containing fine grey sulfides	10	360	720	-	1	-

Two samples from Geopeko's old trench at Voyager 33 returned anomalous copper, lead, zinc, silver, arsenic and gold.

Soil Geochemistry

A total of 41 C-horizon soil samples were collected from the three lines (Enclosures 28 to 30).

Line 14200N: Copper, lead, zinc, silver and gold values were not considered anomalous. Arsenic however returned three anomalous values over a distance of 75 meters. The peak value was 370 ppm

arsenic which was taken from 8650E within red-brown highly oxidized soil.

Line 14600N: No results were considered anomalous.

Line 25: Anomalous arsenic (up to 9 ppm) occurs coincident with pyritic black shales. Two anomalous lead values (940 and 300 ppm) also occur but have not been explained. Copper, zinc, silver and gold values are not anomalous.

Magnetics

On Lines 14200N and 14600N magnetic susceptibility appears to increase gradually westward. On both lines however there are two distinct anomalies. These are:

Line 14200N - 8700E and 8500E
Line 14600N - 8775E and 8525E

The easternmost and strongest anomalies on both lines appear to be coincident with magnetite-bearing highly sheared volcaniclastic sandstones.

No significant anomalies are recognized on Line 25.

MAXMIN

Extremely weak conductors occur at the following localities:

Line 14200N - 8850E
Line 14600N - 8900E, 8750E
Line 25 - 175W

All anomalies are attributed to pyritic black shales with the exception of 14600N:8900E which may be attributable to a fault contact.

Conclusions

Fault controlled mineralization occurs at Voyager 33. High arsenic values in soils at 14200N:8650E may reflect similar

mineralization. Anomalous gold occurs in creeks. DIGHEM anomalies have been located and are attributed to pyritic black shales or faults. Sheared magnetite-bearing sandstone is responsible for magnetic anomalies. The whole prospect is complexely faulted and lies within a major zone of deformation on the western side of the Osmund Syncline.

While the DIGHEM anomalies do not appear to be related to base metal mineralization the area itself is still considered prospective for the following reasons:

- mineralization already occurs at Voyager 33
- the area represents a zone of complex faulting and major structural deformation
- the area is in a similar structural and possibly stratigraphic position to the Wart Hill prospect. It appears to lie in a major fault zone immediately beneath the Waterloo Creek group
- anomalous gold occurs in creeks

Recommendations

- trenching and sampling of rocks at the major arsenic anomaly on Line 14200
- extension of Geopeko's grid northward and westward
- detailed stream sediment sampling, soil and rockchip sampling
- geological mapping
- diamond drilling of targets

26 of 36

Mainwaring River

Previous Work

The Poltock brothers under contract to Geopeko had undertaken geological mapping, rockchip and stream sediment sampling in the area in the early 1980s. No significant results were recorded.

Introduction

The DIGHEM anomalies are located within an area of deeply incised and heavily forested terrain. Access is via a helicopter pad on the Mainwaring River some 500 meters upstream from the anomaly or from a helipad and overgrown walking track at Voyager 26. No line cutting was undertaken in the area as adequate rock exposure occurs in the bed and tributaries of the Mainwaring River.

Geology

Rock types comprise part of the Mainwaring Group and include pyritic black shales, sericitic phyllites, quartz-mica phyllites and limonitic (or sideritic) carbonates which are enclosed in an andesitic volcaniclastic-lava sequence (Figure 7). The EM anomaly (No 11, Appendix 1) occurs on the western, highly sheared (faulted) and schistose contact between black shales and volcanics. The anomaly is attributed to this shear zone.

Stream Geochemistry

Two -80 mesh and panned concentrate samples were collected from stream draining the anomaly (Figure 7). Copper and zinc values were moderately elevated in both sample types - up to 95 ppm copper and 120 ppm zinc (-80 mesh) and 80 ppm and 75 ppm respectively in panned concentrates. These results are attributed to the higher zinc and especially copper contents of the Mainwaring Group mafic volcanics. Arsenic is weakly anomalous in panned concentrate samples. This is attributed to pyrite and arsenopyrite-bearing black shales. Silver and gold were not considered anomalous.

Rock Geochemistry

Four rockchip samples were collected from the area (Figure 7).

Results (which are not considered anomalous) are in ppm and tabled below together with sample description.

Sample	Cu	Pb	Zn	Ag	As	Au	Description
171988 (over 15 meters)	90	10	70	0.5	29	-	grey-black pyritic shale
171989	35	-	120	-	64	-	micaceous phyllite
171990	40	30	45	0.5	30	-	grey-black pyritic shale
171991	35	5	65	-	26	-	quartz-mica phyllite

Conclusions and Recommendations

Electromagnetic anomalism is associated with sheared rocks at the contact between pyritic black shales and basic volcanics. Geochemical samples did not return anomalous values. No further work is recommended.

Wooloomooloo Creek

Previous Work

The area has been covered by Geopeko's regional stream sediment survey outlining several drainages anomalous in -80 mesh gold. During the 1985/86 field season Cyprus partially covered the area with Lines 8 and 9 as part of the East Osmund DIGHEM follow-up.

Introduction

Work this field season was aimed at assessing:

- 3 weak DIGHEM responses
- anomalous stream sediment gold associated with the western flank of a rhyolitic flow dome complex

This prospect is located on the Elliott Bay-Moores Valley Track in the headwaters of Wooloomooloo Creek, a tributary of the Hudson River (Enclosure 23).

The area's gold and base metal potential has been assessed by:

- one 800 meter east-west line with magnetics, MAXMIN and soil geochemistry

- detailed -80 mesh and pan concentrate stream sampling in conjunction with reconnaissance mapping

Geology

Rock types are well exposed in the area which is covered by scant vegetation and patchy shallow soils (Plate 3). Trends in the Cambrian rocks tend to be conformable with the overlying quartzose Ordovician sediments (Figure 8). The volcanics are interpreted to be part of the Waterloo Creek Group and consist of fine-medium grained quartz-rich volcaniclastics with shale lenses. In the east these volcaniclastics are underlain by a flow banded quartz feldspar rhyolite porphyry, interpreted to be part of a flow dome complex. The contact between porphyry and clastics appears to be erosional, large blocks of the former occur in fine clastics (Plate 4). A small body of microgranite located 100 meters north of 575E may be associated with the porphyry. The main structural feature is a northeast trending fault which disrupts both Ordovician and Cambrian lithologies.

Stream Geochemistry

The maximum pan concentrate gold result is 130 ppm in streams draining the rhyolite porphyry. All soil and rock values from this area are below detection limits for gold. Lines 8 and 9 traverse the anomalous drainage. Minus 80 mesh sediments contain a maximum of 0.43 ppm gold in a stream 400 meters south of 500E on the Wqoloomooloo Grid. Mineralization has not been located in this area. A highly anomalous -80 mesh sample of 9.31 ppm gold in vicinity of an EM anomaly and Moores Valley track was resampled and found to be below the limit of detection. Minus 80 mesh and pan concentrate base metal values are close to detection limit with maxima of copper 15, lead 10, zinc 20 ppm (Enclosures 11 to 16).



PLATE 3 Wooloomooloo Creek - soil sampling. Typical vegetation, scant soil cover.



PLATE 4 Wooloomooloo Creek - 650E. Blocks of porphyritic rhyolite in volcaniclastics. Western margin of flow dome complex.

Soil Geochemistry

A total of 32 samples were augered from the B/C horizon in residual soils at 25 and 12.5 meter spacings. Gold and silver values in soils are all below detection with the exception of a single 2 ppm silver. Base metals are close to detection limits. The maximum values are lead 100 and zinc 170 ppm (Enclosure 31).

Rock Geochemistry

Although outcrop is extensive only one slightly mineralized exposure was located - a quartz veined and limonitic rhyolite. The most mineralized material was sampled but only copper and zinc assayed above detection limits with 90 and 70 ppm respectively (Figure 8). Samples collected are listed as follows:

Sample	Description	Results
202753	Rhyolite quartz feldspar porphyry flow banded	not analyzed
202754	Volcaniclastic, medium grained, cross bedded	not analyzed
202755	Microgranite?, equigranular with quartz volcanics	not analyzed
216196	Flow banded rhyolite with quartz, veining and limonite joints	90 ppm Cu, 70 ppm Zn, 2 ppm As
216197	Rhyolite and overlying volcaniclastics	not analyzed
216198	Volcaniclastic medium-coarse grained	not analyzed

Geophysics

Ground magnetics and MAXMIN has been read along the Line 6750. There are no magnetic responses and EM responses at 400 and 500E are very weak (Enclosure 31).

Conclusions and Recommendations

The EM anomalies are attributed to a shale unit in the west and a major fault at 400E. Both locations appear to be unmineralized. Anomalous gold in pan concentrates and -80 mesh is associated with very low base metal and arsenic values. These anomalies have been adequately tested by gridding this season and in 1985/86.

No further work is recommended.

V 27

Mt Osmund East

Previous Work

This area was originally covered by Geopeko's regional stream sampling and geological mapping. No detailed work was completed by Geopeko. In the 1985/86 field season Line 15 was cut and surveyed by Cyprus but early curtailment of that program precluded geochemical or geophysical evaluation.

Introduction

The prospect is located to the east of Mt Osmund (Enclosure 23) in the Hudson River drainage system. A group of apparently stratiform anomalies occur over a strike length of 2 kilometers. In addition to the already established Line 15 two extra lines (16 and 17) were cut and surveyed. A total of 2.1 line kilometers were surveyed.

Geology

Rock types in the area were not well exposed however rock in C-horizon soil samples was used for mapping. Rock types consist of variably altered, fine to medium grained rhyolitic volcaniclastics of the Wart Hill and Hudson River Volcanic sequence (Figure 9). Alteration included pervasive chlorite and vein controlled quartz-chlorite types. No mineralization was recongized.

Stream Geochemistry

Minus 80 mesh samples contained up to 30 ppm lead and 25 ppm zinc but copper, arsenic, silver and gold were below detection limits. Pan concentrated samples contained up to 80 ppm lead, 125 ppm zinc, 4 ppm arsenic and 2.93 ppm gold (Figure 9). These values are not considered to be anomalous.

Soil Geochemistry

A total of 78 C-horizon soil samples were collected on Lines 15, 16 and 17 at 25 meter spacings. Peak values were 65 ppm copper,

6000 ppm lead, 1700 ppm zinc, 3 ppm arsenic and 0.03 ppm gold. Silver was below detection in all samples. One sample (202495) comprised fine quartz gravel which overlay bedrock and returned 1.85 ppm gold. Resampling to deeper levels where bedrock was encountered returned a value of <0.008 ppm gold. Though not fully tested by follow-up work it would appear in places the overlying Tertiary gravels contain appreciable gold (Enclosures 32 to 34).

Results suggest zinc, lead and to a lesser extent copper become elevated and more eratic in zones of chlorite or quartz-chlorite alteration.

Rock Geochemistry

Three rockchip samples were collected from the area, two only were assayed (Figure 9). Results (in ppm) and descriptions are as follows:

Sample	Cu	Pb	Zn	Ag	As	Au	Description
202756	45	30	45	-	-	-	limonitic quartz-phyric tuff
202757	50	435	670	11	-	-	ferricrete
202758	not assayed						chloritic quartz-phyric tuff

Sample 202757 is considered weakly anomalous but outcrop displays little areal extent.

Geophysics

Ground magnetic surveys indicate susceptibility contrasts of up to 100nT on the eastern end of Line 15 and the western end of Line 16. Magnetic highs on these lines are at least in part coincident with chlorite or quartz-chlorite alteration zones. Elsewhere within the exploration licence (eg Voyager 9 and Waterloo Creek - Voyager 16) magnetite is associated with chlorite alteration. This may also occur at Mt Osmund East though magnetite has not been identified.

MAXMIN surveys indicate very weak conductors at several localities (Enclosures 32 to 34). These are:

037

Line 15 - 750E
Line 16 - 1025E
Line 17 - 1050E and 1625E

Conclusions and Recommendations

Elevated soil geochemistry appears to be coincident with zones of chlorite or chlorite-quartz alteration possibly in association with magnetite. EM conductors have been located and are extremely weak with no immediately discernible source. Gold is elevated in quartz gravels which overlie bedrock. No further work is recommended.

North Waterloo Creek V·34

Previous Work

The area has previously been covered by Geopeko's regional geological mapping and sediment sampling program. No detailed work was undertaken.

Introduction

The North Waterloo Creek anomalies occur as two discrete zones approximately 2 kilometers apart within the headwaters of a westward draining tributary of Waterloo Creek (Enclosure 23). One line 600 meters long was surveyed to cover each anomaly.

Geology

Rock types are poorly exposed but in both zones appeared to consist solely of fine to medium grained rhyolitic volcaniclastics. On Line 18 quartz-chlorite-limonite vein alteration was recognized (Enclosure 1).

Soil Geochemistry: Line 18

Early sampling at 25 meter spacings returned the following peak values: 10 ppm copper, 335 ppm lead, 245 ppm zinc, 0.5 ppm silver, 3 ppm arsenic and 0.16 ppm gold. Anomalous lead, zinc and gold occurred on the western end of the Line 18. Gold values especially were consistently anomalous at the end of the line and coincident with a zone of quartz-chlorite-limonite veining.

Rocks had been fire assayed for gold (Enclosure 35, Figure 10).

A second pass with resampling and extension of the line westward was considered warranted. While zinc and lead appeared to duplicate previous results gold did not. Samples were analyzed for gold by both AAS and fire assay methods but no reproduction of results could be obtained even with a closer sample spacing. The discrepancy in gold results remains unexplained.

Rock Geochemistry: Line 18

Two rockchip samples of quartz-chlorite vein material (samples 202943-44) were not considered anomalous (Enclosure 19).

Geophysics: Line 18

A small 10nT easterly dipping magnetic anomaly centered at 50W appears to be coincident with a weak MAXMIN conductor. This occurs in a small gully where rock types were not identified and where no geochemical anomalism occurs.

Soil Geochemistry: Line 5100

C-horizon soil samples were collected at 25 meter spacings. Peak values are as follows: 15 ppm copper, 25 ppm lead, 260 ppm zinc, 4 ppm arsenic and 0.02 ppm gold. Silver was below detection in all samples (Enclosure 36).

Rock Geochemistry: Line 5100

One sample of ferricrete returned 10 ppm copper, 5 ppm lead, 25 ppm zinc, <0.5 ppm silver, 71 ppm arsenic and 0.04 ppm gold (Enclosure 20).

Geophysics: Line 5100

The ground magnetic profile is consistently flat. A weak MAXMIN conductor centered at approximately 8300E is coincident with a zinc soil anomaly (Enclosure 36).

Conclusions and Recommendations

The DIGHEM anomalies in both zones have been ground located. They are very weak and have no significant surface expression or

089

78000mE.
79000mE.
80000mE.
54000mN.
53000mN.
52000mN.
LINE 14600N
LINE 14200N
LINE 25
MAINWARING
RIVER
Abundant quartz veining
Cyprus Grid Extensions
GEOPEKO GRID
COPPER CREEK FAULT
Outcrop
Graded beds
5% pyrite
V33 1&2
216099
216100
171977
171978
171979
10b
10c
10f
4a
4b
4
5b
10
5 cm
GN
MN
13°
GN = TN

10 / –	– / –	⓪	
– / 1	– / 1		
30 / 0.36	10 / 0.04		
5 / –	– / 3	㉕	
– / 1	– / –		
– / 0.08	– / 82.56		
– / –	– / 25	⑳	
– / 1	– / 1		
5 / –	10 / 173.3		
– / 3.5		⓪	
5 / –			
20 / 5.27			

Drill Hole Intersections

7.6m ● 1.24% Pb, 0.8% Zn, 56g/t Ag, 0.06g/t Au, 0.10% As

and 8m ● 0.06% Pb, 0.09% Zn, 2g/t Ag

Rock Chip Samples

No.	Cu	Pb	Zn	Ag	As	Au
216099	1600	1875	545	52	7400	0.015
216100	2500	215	190	43	86	0.045
171977	10	5	25	0.5	5	–
171978	5	–	15	–	1	–
171979	10	360	720	–	1	–

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

MT. OSMUND WEST

GEOLOGY

SCALE 1:10,000 (100 0 100 200 METRES)

DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

FIG. 6

892090

associated elevated geochemistry. Anomalous gold soil values on Line 18 have not been repeated in follow-up work. No further work is recommended.

OLD PROSPECTS.....

North Lewis

Previous Work

This prospect (previously named Voyager 12) was originally discovered by Geopeko while following up anomalous copper, lead and zinc in stream sediment samples. Rockchip samples of several gossans produced best values of 0.36% copper, 0.68% lead, 0.7% zinc, 440 g/t silver and 265 g/t gold (Table 5). A grid was established and geological mapping, soil sampling (for copper, lead, zinc only), self-potential, VLF-EM and dipole-dipole IP were completed.

Coincident geophysical anomalies at 300S:138E and 80N:325E were identified. Five diamond drillholes were designed to test anomalies and gossanous outcrops. Best intercepts were 0.62% copper, 25 g/t silver and 0.15 g/t gold over 2 meters (DDH-1) and 1.6 g/t gold over 2 meters (DDH-3). It was recommended downhole IP be conducted in DDH-5 to ascertain the source of the geophysical anomaly before further drilling took place. This work was not completed.

TABLE 5 ANALYSES OF GOSSAN SAMPLES FROM NORTH LEWIS
(Geopeko data)

Sample	Co-ordinates			Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppm
KR4951	002	S:008	W	0.26%	0.13%	580	4		0.035
4954	200	S:200	E	0.26%	0.26%	520	18		8.4
4955	500	S:030	W	0.13%	0.12%	115	10		0.185
4959	185	S:210	E	0.36%	0.64%	990	440		2.9
4961	100	S:300	E	20	90	0.70%	4		0.03
4963	180	S:140	E	520	0.68%	0.12%	166		265
4965	200	S:150	E	0.32%	0.22%	720	35		0.64
5001	184	S:212	E	0.48%	0.92%	530	80	0.92%	3.9
5002	184	S:212	E	0.32%	0.48%	890	290	0.63%	3.1
5003	184	S:212	E	0.40%	0.88%	0.17%	370	0.87%	3.9
5004	184	S:212	E	0.40%	0.66%	600	340	0.93%	3.4
5005	182.5	S:213.5	E	0.19%	0.40%	510	125	0.36%	2.2
5006	182.5	S:213.5	E	0.34%	0.82%	510	70	0.72%	1.9
5007	182.5	S:213.5	E	0.18%	0.88%	640	195	0.56%	1.6
5008	180.5	S:214	E	0.23%	0.40%	230	100	0.50%	24
5009	180.5	S:214	E	0.38%	0.34%	220	120	0.54%	51.7
5010	183	S:125	E	1.33%	0.80%	0.12%	140	1.32%	29.4
5011	183	S:125	E	760	0.42%	0.11%	17	0.90%	10.8
5012	183	S:125	E	280	300	10	1	0.21%	0.39
5013	183	S:125	E	0.13%	0.38%	870	80	0.89%	9.6
5074	145	S:175	E	900	360	90	2	0.10%	0.085
5075	140	S:175	E	0.13%	520	310	3	0.43%	0.66
5076	135	S:195	E	0.32%	0.58%	690	10	0.49%	0.44
5077	085	S:210	E	0.30%	0.70%	85	25	1.17%	2.1
5078	205	S:195	E	0.17%	0.74%	990	20	0.93%	5

Introduction

This prospect is located on the northern banks of the Lewis River in the southeastern part of the licence (Enclosure 23). Cyprus considered gold values obtained from rocks within the prospect warranted follow-up. It was also considered diamond drilling by

Geopeko had not adequately tested gossanous outcrops at depth. Furthermore newly developed models relating gold mineralization to porphyritic intrusions suggest this area is highly prospective.

The prospect was gridded (6.9 line kilometers, 0.9 kilometers of which had to be cut) and geological mapping, soil sampling, ground magnetics and selected lines of MAXMIN were surveyed. DDH-5 was relogged at the Mines Department in Hobart and petrographic descriptions of same core was undertaken (Appendices 3 and 4).

Geology

The area consists principally of fine to coarse grained rhyolitic quartz crystal tuffs and minor interbedded tuffaceous siltstone and shales. These are in contact with a quartz-felspar-biotite porphyry to the east (Enclosure 37).

The pyroclastics and sediments strike north-northeast and dip to the west. The contact with the porphyry appears to be conformable as is also indicated by previous drilling. The rocks are strongly foliated. Foliation lies approximately parallel to bedding and is generally defined by wispy chlorite or more rarely by sericite.

The mineralized area is clearly outlined by oxidized iron at surface. This is caused by weathering of chlorite and pyrite. This zone appears to be an alteration halo which lies grossly parallel to the porphyry contact but appears to trend towards the contact to the north. The area of mineralization is approximately 500 meters long by 100 meters wide.

Gossanous pods (Plate 5) mostly after pyrite-quartz-chlorite veins are approximately 10 to 20 centimeters wide and 1 to 2 meters long. The strongest concentration of gossanous outcrops occurs within a 100 meter radius of 200S:200E.

Often occurring with the gossans are quartz-tourmaline breccia



PLATE 5 Gossan from North Lewis containing fresh unoxidized pyrite (bottom right and top left).



PLATE 6 Quartz-pyrite vein. Occurs adjacent to granite contact.

veins. These are not mineralized (Table 6) but increase in abundance with increasing abundance of mineralized gossans.

Soil Geochemistry

A total of 267 soil samples were collected at 25 meter intervals on lines mostly 50 meters apart over the entire grid. Sample locations are plotted on Enclosure 38 and contoured results included as Enclosures 39 to 44. Values range from 5 to 600 ppm zinc, 5 to 2200 ppm lead, <5 to 980 ppm copper, <0.5 to 12 ppm silver, <0.008 to 0.11 ppm gold and <1 to 3110 ppm arsenic.

Results show gold and arsenic anomalies are coincident with the zone of iron oxidation and probable mineralization. Copper and lead anomalies occur broadly coincident with this zone but are less well defined. Silver showed a poor geochemical response and is not recommended for assay in soils in this prospect.

Rock Geochemistry

Initially 44 rockchips (Table 6) were collected over the area mostly concentrating on limonite stained material and gossans (Enclosure 45). The best values obtained were 4.65% copper, 1.77% lead, 0.2% zinc, 232 g/t silver and 24.3 g/t gold. Generally all mineralization was contained within the limonite stained alteration halo with the highest rockchip values in the 200S:200E area (Enclosures 46 and 47).

Subsequent to the above sampling, a series of systematic rockchip strip samples were taken over 50 meter intervals. The method employed was as follows: the bulk of the sample (approximately 70%) was taken at the 50 meter peg and the rest of the sample was taken in decreasing amounts, 25 meters either side of the peg. This method was employed so veins did not bias the sample. Sample locations are presented on Enclosure 48.

The results of the systematic rockchip strip sample were very encouraging with the best value of 1.63 g/t gold at 150S:150E (Enclosures 49 and 50). Other values include up to 10 ppm silver, 5520 ppm arsenic, 805 ppm copper, 1875 ppm lead and 650 ppm zinc.

A summary of results for gold in rockchips, strip samples, diamond drillholes and sediments is presented on Enclosure 51.

TABLE 6 NORTH LEWIS ROCKCHIP SAMPLING (CYPRUS SAMPLES)

Sample	Co-ords	Description	Cu	Pb	Zn	Ag	As	Au
171663	440S: 40E	Quartz vein, mod FeOx veinlets	180	445	155	4.5	250	0.01
171664	470S: 25E	Rhyolitic tuff, major FeOx veinlets	310	585	190	2.5	3800	0.04
171665	440S: 00E	FeOx veinlets, trm Bx veinlets	1250	5750	915	31.5	4700	0.14
171666	500S: 50W	Quartz, trm Bx veinlets	395	145	65	2	800	0.03
171667	450S: 20W	Quartz, trm Bx veinlets, FeOx veinlets	475	1300	105	15	1.55%	1.09
171668	400S: 40W	Quartz, trm Bx veinlets	20	85	20	1	300	BLD
171669	425S: 10W	Quartz, trm Bx, FeOx veinlets	253	2000	95	19	4900	0.03
171670	390S: 5E	Quartz veinlets minor FeOx	325	795	100	3.5	150	BLD
171671	400S: 80E	FeOx veinlets	2480	1.3%	2050	53.5	1.25%	0.79
171672	350S: 75E	FeOx veinlets	505	2000	240	5.5	2100	0.14
171673	350S: 55E	Quartz veinlets minor FeOx	780	7400	555	7.5	8900	0.59
171674	315S: 55E	FeOx veinlets	655	3150	830	4.5	5500	0.65
171675	290S: 40E	Rhyolitic tuff, limonite stained	230	340	65	1	380	BLD
171676	215S:115W	Ferricrete	275	795	220	1.5	700	BLD
171677	205S: 45E	FeOx veinlets	1650	930	995	31	8300	1.65
171678	215S:130E	Quartz, trm Bx veinlets, FeOx	560	215	900	3.5	3400	0.13
171679	200S:198E	Gossan	160	175	25	48.5	1100	0.21
171680	175S:200E	Gossan	4550	8550	630	232	1.45%	2.63
171681	100S:199E	Gossan	2650	8150	1200	16.5	1.45%	4.72
171682	40S:250E	Quartz, trm Bx, FeOx veinlets	495	2650	125	3	9900	0.37
171683	20S:170E	Rhyolitic tuff, limonite stained	1510	140	95	3	880	0.03

Sample	Co-ords	Description	Cu	Pb	Zn	Ag	As	Au
171684	100N:150E	Quartz, pyrite veinlets	475	1275	BLD	201	2400	0.1
171685	80N:190E	FeOx veinlets	900	4200	500	2	9500	0.98
171686	180N:130E	FeOx veinlets	80	740	200	2	200	BLD
171687	150N:130E	Quartz, trm Bx	20	5	10	BLD	59	BLD
171688	150N:300W	Rhyolitic tuff	5	BLD	10	BLD	12	BLD
171689	150N:150W	Rhyolitic tuff	5	15	235	BLD	12	BLD
171690	75N: 35W	Quartz veinlets, spec hematite	10	15	40	BLD	17	BLD
171691	375N:115E	Rhyolitic tuff, limonite	145	150	155	BLD	10	BLD
171692	75N:330E	Quartz, FeOx, pyrite veinlets	7800	2475	205	93	3700	0.33
171693	73N:330E	Quartz, FeOx, pyrite veinlets	2000	4175	300	13	4100	0.38
171694	71N:330E	Quartz, FeOx, pyrite veinlets, native Cu	2.85%	3000	335	34	4900	0.19
171695	250S: 60E	Gossan	1900	2750	1800	20	6500	0.51
171696	285S: 55E	Gossan	535	2125	560	16	4700	0.91
171697	180S:120E	Gossan	4.65%	8800	1900	161	2.4%	24.31
171698	140S:170E	Gossan, poss ferricrete	3600	1950	595	BLD	1.05%	1.15
171277	255N:275E	Gossan	2750	4.4%	420	133	2.75%	1.07
171278	100N:340E	FeOx veinlets in tuffs	200	525	25	11	700	0.01
171279	100N:300E	Ferricrete	80	80	25	0.5	320	BLD
171280	77N:330E	FeOx, pyrite veinlets	1.15%	4200	380	69	5700	0.52
180544	40N: 65E	Ferricrete	1750	735	380	BLD	1800	0.02
180545	75S:225E	Gossan	6025	1.77%	1200	383	3.05%	2.03
180546	260S:180E	FeOx, pyrite veinlets	8875	925	325	15	640	0.25
202999	70S:200E	Quartz, pyrite	510	1100	1900	39	3000	0.44

Abbreviations: trm - tourmaline, Bx - breccia, FeOx - iron oxide
Results in ppm unless stated otherwise

Stream Geochemistry

Geopeko stream sampling of the -80 mesh fraction returned anomalous base metal values. Cyprus sample density was lower but

with respect to the regional survey of the porphyry contact zone base metal values were similarly anomalous (Table 7). Gold in Geopeko samples was anomalous (up to 0.125 g/t gold) whereas Cyprus samples were significantly low (best value 0.01 g/t gold). The discrepency in results has not been explained. Panned concentrate sampling similarly returned poor results (up to 0.03 g/t gold) and little or no gold was visible in concentrates (Enclosure 47). The most encouraging values come from arsenic in -80 mesh samples with anomalies of 210 and 83 ppm being obtained.

It would appear although gold mineralized outcrops have been identified, streams draining them contain little or no coarse gold (as seen in panned concentrates). Furthermore Cyprus sampling to date has not shown the presence of fine gold (in -80 mesh samples) whereas Geopeko sampling did. The best stream indicators for Lewis North type mineralization appear to be base metals with anomalous arsenic.

TABLE 7 NORTH LEWIS AREA - COMPARISON OF STREAM SEDIMENT RESULTS (-80 MESH)

	List of assays in ppm	
	Geopeko	Cyprus
Cu	5, 2, 10, 10, 25, 105, 5, 5, 10, 85, 115, 70, 50, 25, 10, 15 Average 34	40, 35, 80 Average 51.6 ppm
Pb	230, 45, 25, 115, 80, 210, 140, 55, 50, 240, 210, 230, 400, 820, 30, 500 Average 155	30, 30, 150 Average 70 ppm
Zn	25, 10, 25, 15, 20, 80, 25, 25, 30, 30, 40, 40, 65, 45, 20, 40 Average 33	25, 15, 25 Average 21.6 ppm

List of assays in ppm

	Geopeko	Cyprus
Au	0.025, 0.003, 0.24, 0.02, 0.11, 0.025, 0.085, 0.014, 0.03, 0.035, 0.03, 0.125, 0.04	BLD, BLD, 0.01
	Average 0.06	Average BLD ppm

Geophysics

Ground Magnetics: The entire grid was covered by a magnetic survey with readings taken every 10 meters. Data are presented on Enclosures 52 and 53. The survey outlined several anomalous zones of elevated magnetic susceptibility. Two zones centered at 200S:110E and 100N:320E occur coincident with mineralized outcrops and areas of anomalous geochemistry. An anomaly on the far eastern end of Line 200S is coincident with the porphyry/volcanic contact.

MAXMIN: Three lines of MAXMIN were surveyed (100 meters transmitter/receiver separation, Enclosures 54 to 57). No signficant anomalies were identified.

Conclusions

Geological mapping has identified a zone of extensive iron staining where quartz-pyrite-chlorite-tourmaline alteration, veining and brecciation has occurred. The zone (approximately 500 meters long and 100 meters wide) is hosted predominantly within Cambrian felsic volcanic rocks adjacent to a large body of quartz-biotite-feldspar porphyry. Soil geochemical sampling indicates the zone is anomalous in gold, arsenic, copper and lead. Stream sediment geochemistry suggests arsenic and generally elevated base metal values may be used as pathfinders for this style of mineralization. Rockchip geochemistry indicates the zone to be anomalous in copper, lead, zinc, silver, arsenic and gold. Ground geophysics suggests mineralization may have a weak magnetic signature and the MAXMIN electromagnetic method was

unable to define distinct anomalies.

Rockchip samples containing up to 24 g/t gold and strip samples containing 1.63 g/t gold over 50 meters indicate the area to be prospective for gold mineralization.

Recommendations

- Further gridding and soil sampling to the north and northeast where soil anomalies remain open-ended
- VLF electromagnetics and ground magnetics to define structure
- Diamond drilling of approximately 500 to 600 meters of HQ drilling is required to test for subsurface mineralization

Wart Hill

Previous Work

The discovery of the Wart Hill (previously known as Voyager 19) prospect by Geopeko geologists was made during geochemical follow-up of alteration zones identified in a regional mapping program (1979-80 field season). During the 1980-81 season the Wart Hill area was gridded and soil sampled by hand and power auger methods. Reconnaissance gradient array and dipole-dipole IP, ground magnetic and reconnaissance gravity surveys were undertaken. Trenches were excavated over soil geochemical anomalies and one small massive sulfide pod was uncovered. Its average grade over 4 meters was 10.23% lead, 17.94% zinc, 138 g/t silver and 0.6 g/t gold.

In the 1981-82 season the following work took place:

- detailed gravity survey
- infill gridding and soil sampling

- survey of selected lines of dipole-dipole IP
- a VLF-EM survey
- excavation of shallow trenches
- drilling of five diamond drillholes

This work revealed a second small massive sulfide pod with an average grade of 13.94% lead, 21.9% zinc, 0.2% copper, 680 g/t silver and 0.84 g/t gold over 3 meters. The gravity survey failed to locate a large near surface sulfide body and drilling failed to intersect significant mineralization. Geopeko geologists considered although the sulfide pods appeared to be small and discontinuous they had identified a favorable horizon in which ore forming processes were active.

During the 1982-83 season the prospective stratigraphic horizons at Wart Hill were covered as part of an extensive dipole-dipole IP survey, however still no significant anomalies were detected.

Final activity on the prospect during the 1983-84 season consisted of a small closely spaced dipole-dipole IP survey and a UTEM (deep penetration/high resolution electromagnetics) survey. These failed to detect significant mineralization.

1986/87 Field Season Work

Work by Cyprus Minerals on the prospect consisted of:

- re-establishment of the Geopeko grid
- detailed infill soil sampling at 10 meter spacings (total of 125 samples)
- reconnaissance geological mapping
- a ground magnetics survey (approximately 6 line kilometers)

- a MAXMIN survey (approximately 6 line kilometers, 100 meter transmitter/receiver separation)

Cyprus (formerly Amoco Minerals) provided logistical support for a Tasmanian University Honors student (J Lea) during his study of the Wart Hill mineralization.

Geology

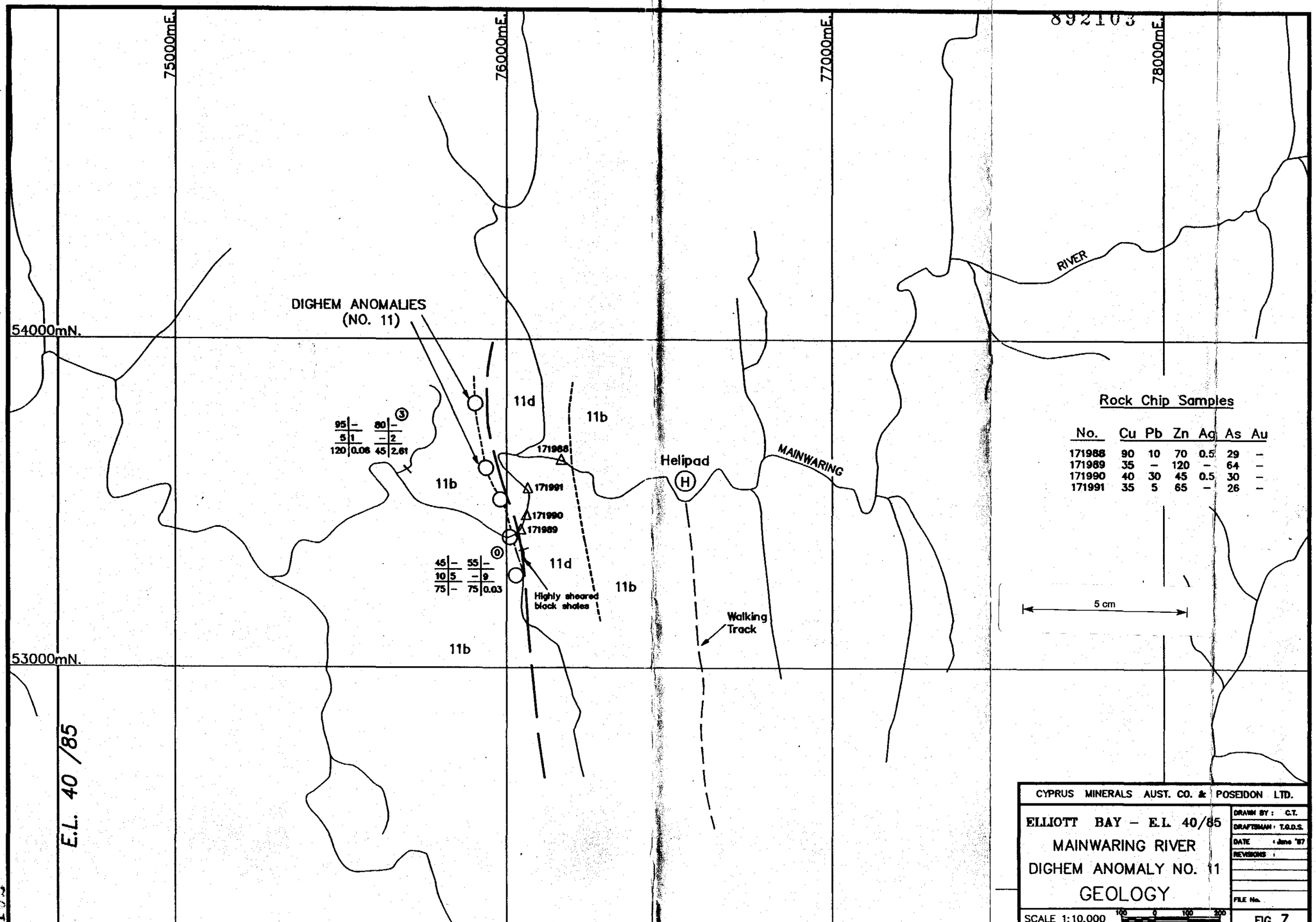
Figure 11 represents a simplified compilation of previous work and Cyprus mapping. The massive galena-sphalerite-pyrite pods discovered by Geopeko are hosted within a sequence of fine to medium grained quartz-phyric, rhyolitic volcaniclastics of Cambrian age (the Wart Hill Volcanics). The pods are contained within a zone of predominantly sericite altered volcanic rocks in a swampy low lying area. On the western side of the northernmost pod (Lens 'A') chlorite-pyrite alteration occurs.

The sulfide pods occur within 150 meters of a major fault (?) known as the Osmund Fault (Large et al 1987) which separates Mid Cambrian rocks from Upper Cambrian-Lower Ordovician rocks of the Waterloo Creek Group. The latter include rhyolitic volcaniclastic conglomerates and black shales. To the west of the sulfide pods volcaniclastic rocks give way to a massive, rhyolitic, quartz-feldspar porphyry which may be intrusive. The nature and complexity of the mineralization at Wart Hill is described by in Appendix 5.

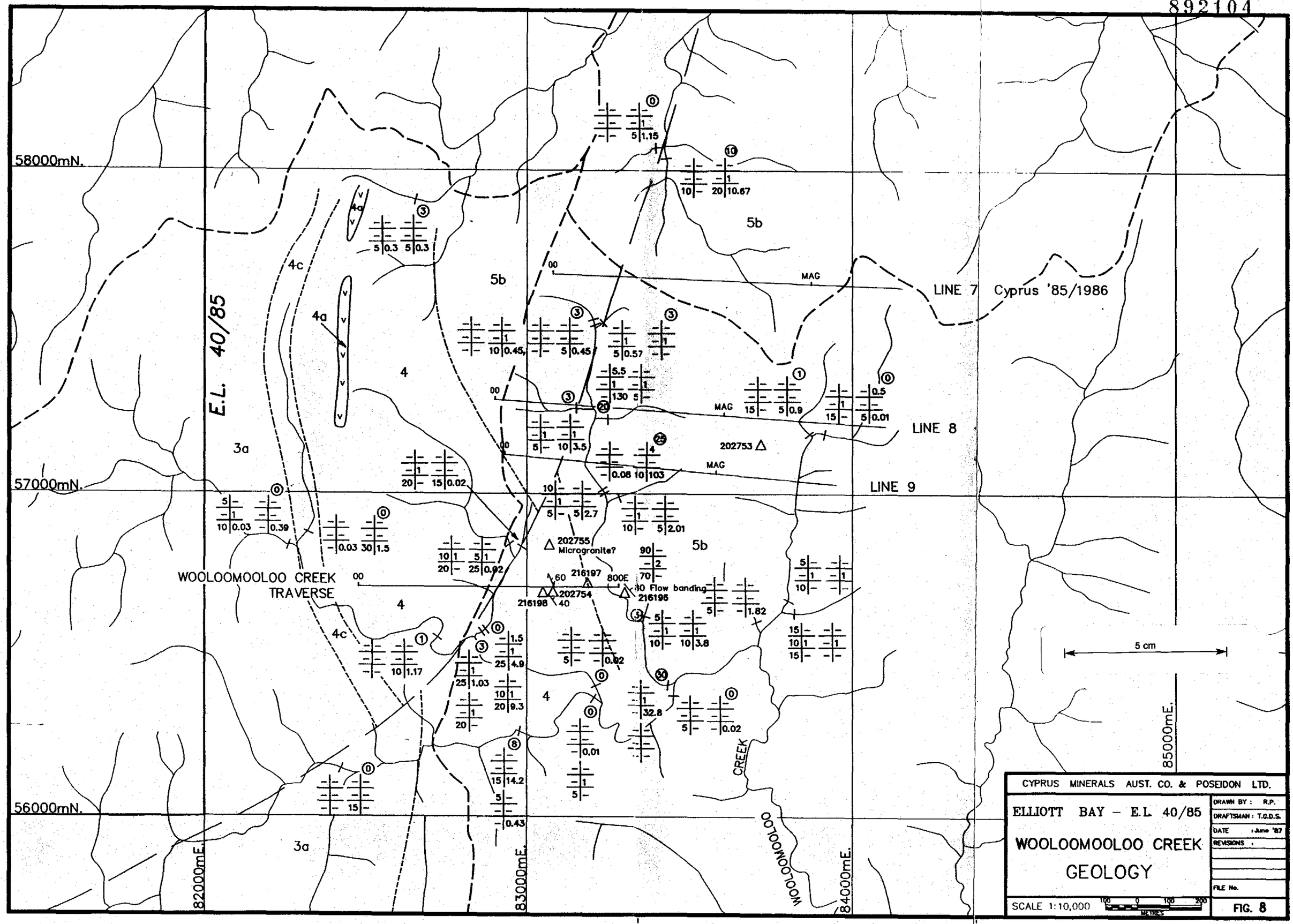
Soil Geochemistry

Soil sampling by Cyprus was designed to aid better definition of existing soil anomalies. Infill sample locations are presented on Figure 12. Results and geochemical contours at 1:1000 are presented as Enclosures 58 to 62 for copper, lead, zinc, silver and arsenic. Reductions of contours to 1:2500 scale are presented in Figures 13 to 17. Gold values for all samples above detection limit are presented on Figure 18.

Copper: Cyprus values range from <5 to 235 ppm (Figure 13, Enclosure 58). The best value came from a Geopeko sample (1050


892103
75000mE.
76000mE.
77000mE.
78000mE.
54000mN.
53000mN.
DIGHEM ANOMALIES
(NO. 11)
11d
11b
11b
11d
11b
11b
95 | –
5 | 1
120 | 0.06
80 | –
– | 2
45 | 2.61
45 | –
10 | 5
75 | –
55 | –
– | 9
75 | 0.03
171988
171991
171990
171989
Highly sheared
black shales
Helipad
H
MAINWARING
RIVER
Walking
Track
5 cm
E.L. 40 /85
Rock Chip Samples
No. Cu Pb Zn Ag As Au
171988 90 10 70 0.5 29 –
171989 35 – 120 – 64 –
171990 40 30 45 0.5 30 –
171991 35 5 65 – 26 –
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.
ELLIOTT BAY – E.L. 40/85
MAINWARING RIVER
DIGHEM ANOMALY NO. 11
GEOLOGY
DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.
SCALE 1:10,000
100 0 100 200
METRES
FIG. 7

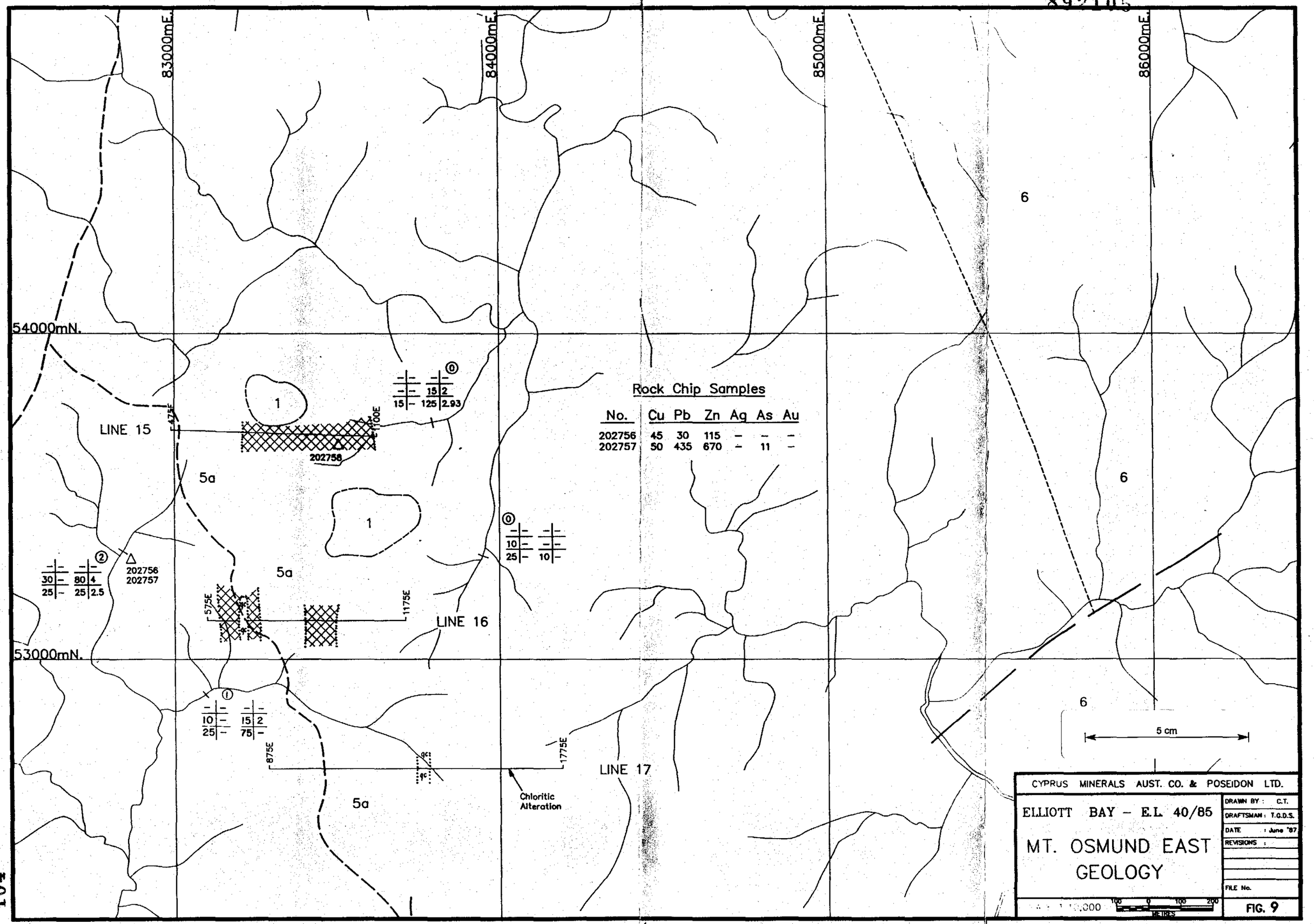
892104



58000mN.
57000mN.
56000mN.
82000mE.
83000mE.
84000mE.
85000mE.
E.L. 40/85
LINE 7 Cyprus '85/1986
LINE 8
LINE 9
WOOLOOMOOLOO CREEK TRAVERSE
WOOLOOMOOLOO CREEK
5b
4
4a
4c
3a
202753
202755 Microgranite?
216197
216198
202754
216196
Flow banding
MAG
5 cm
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.
ELLIOTT BAY – E.L. 40/85
WOOLOOMOOLOO CREEK
GEOLOGY
DRAWN BY : R.P.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.
SCALE 1:10,000
METRES
FIG. 8

103

892105



Rock Chip Samples

No.	Cu	Pb	Zn	Ag	As	Au
202756	45	30	115	–	–	–
202757	50	435	670	–	11	–

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MT. OSMUND EAST GEOLOGY

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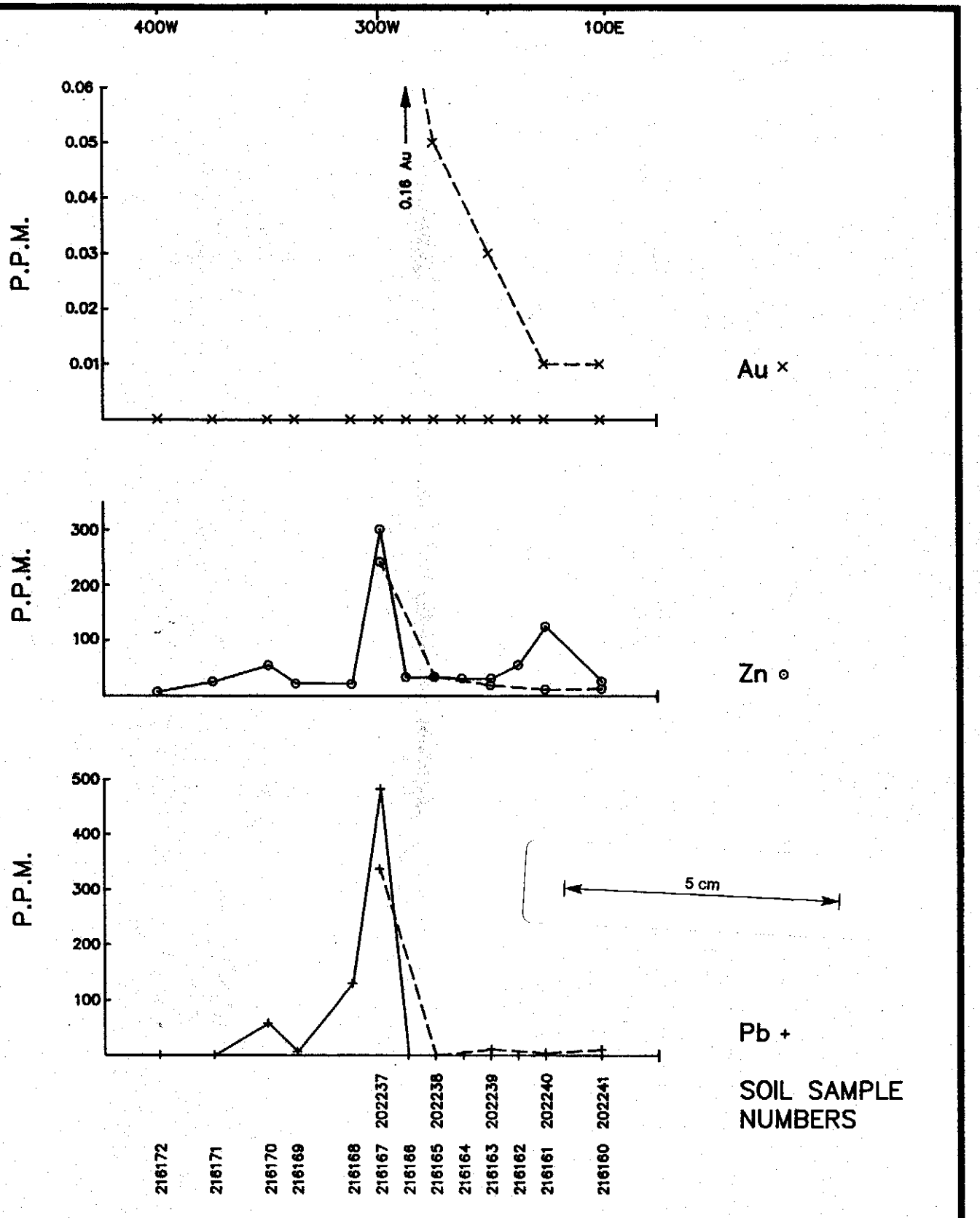
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

FIG. 9

104

892106



Early Samples (Fire Assay) ----

Late Samples (ASS and Fire Assay methods) ——

Note: Cu and Ag all low, no marked change.

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NORTH WATERLOO CREEK

LINE 18

Duplicate Sampling

SCALE 1 : 2500 (20 0 40 80 METRES)

DRAWN BY : C.T.
DRAFTSMAN: T.G.D.S.
DATE : May '87
REVISIONS :
FILE NO.

FIG. 10

892107

13500 N —
13400 N —
13300 N —
13200 N —
13100 N —
13000 N —

Lens 'A'
4m ● 10.2% Pb, 17.9% Zn, 0.16% Cu,
138g/t Ag, 0.6g/t Au, 200ppm As

Rock Chip Sample No. 202998
6.6% Pb, 39.5% Zn, 0.62% Cu,
206g/t Ag, 0.97g/t Au, 260ppm As

Lens 'B'
3m ● 13.9% Pb, 21.9% Zn, 0.20% Cu,
680g/t Ag, 0.8g/t Au, 160ppm As

V19/1
V19/4
V19/2

4a
4c
5a
5b

9800 E
9900 E
10000 E
10100 E
10200 E
10300 E
10400 E

LEGEND

WATERLOO CREEK GROUP

- 4a — Hematite volcaniclastic conglomerate
- 4c — Black shale

WART HILL VOLCANICS

- 5a — Fine to med. grained rhyolitic volcaniclastic
- 5b — Rhyolitic quartz–feldspar porphyry

ALTERATION

- Sericite
- S S S — Chlorite – pyrite

- Massive sulphide pod
- Geological contact
- Fault
- V19/2 — Diamond drill hole
- Stream
- Rock chip sample

5 cm

GN
MN
12.6°
GN = TN

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ELLIOTT BAY – E.L. 40/85

WART HILL

SIMPLIFIED GEOLOGY

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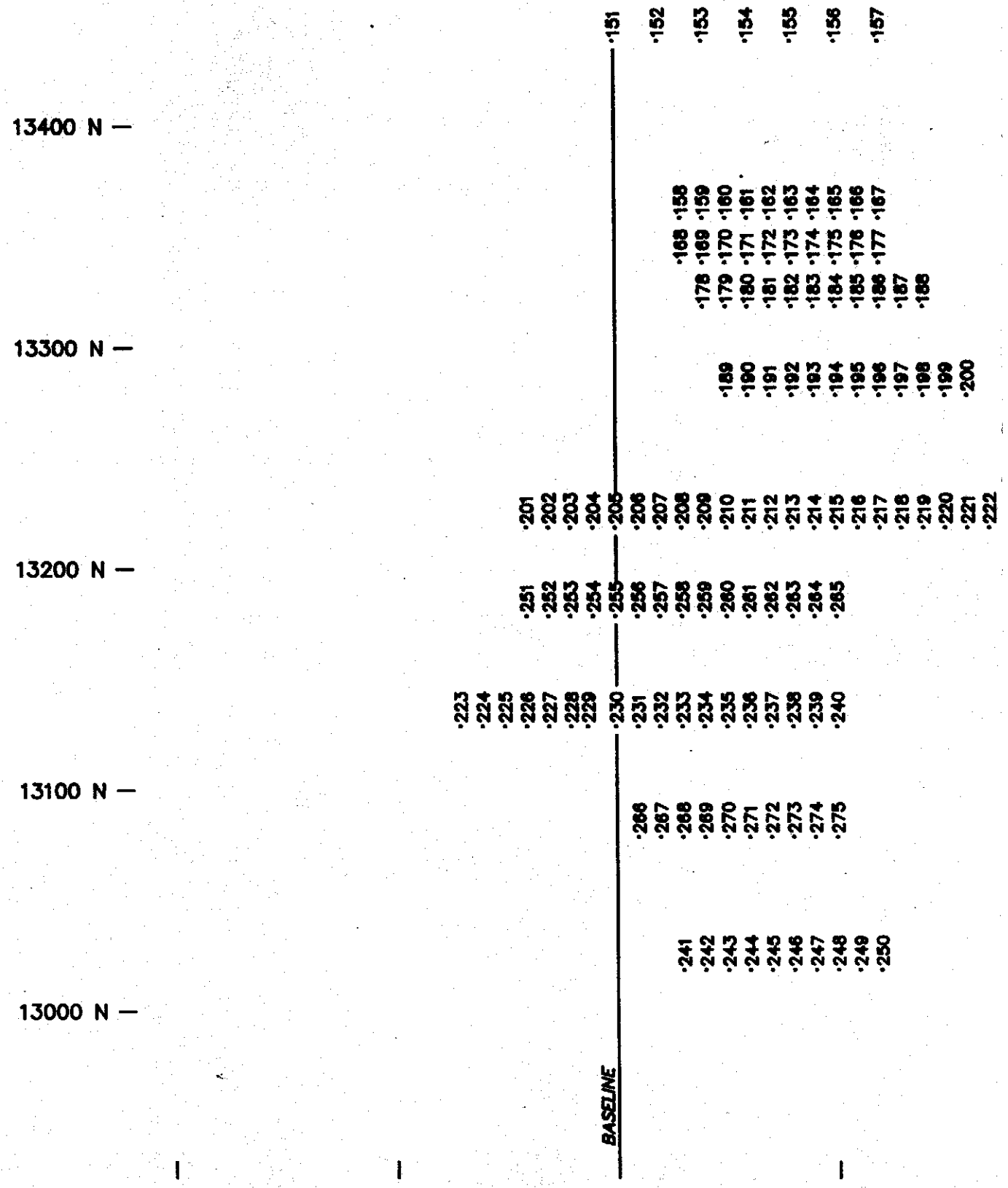
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.
SCALE 1 : 2500
FIG. 11

106

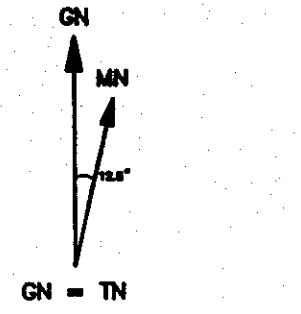
892108



NOTE:

Sample Prefix = 171

5 cm



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ELLIOTT BAY – E.L. 40/85
WART HILL
SOIL SAMPLE LOCATIONS
Infill Sampling

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DRAFTSMAN : T.B.B.S.
DATE : April '87
REVISIONS :
FILE No.
SCALE 1 : 2500
FIG. 12

107

892109

13500 N —

13400 N —

13300 N —

13200 N —

13100 N —

13000 N —

9800 E | 9900 E | 10000 E | 10100 E | 10200 E | 10300 E | 10400 E

CONTOUR INTERVAL

14	>1000 ppm
10	200 – 1000 ppm
6	20 – 200 ppm
	<20 ppm

· Cyprus Infill Lines

5 cm

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ELLIOTT BAY – E.L. 40/85

WART HILL

SOIL GEOCHEMISTRY

COPPER

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500 (20 0 40 80 METRES)

FIG. 13

108

N. W. Computer Aided Drafting Centre (004 354315)

892110

13500 N —

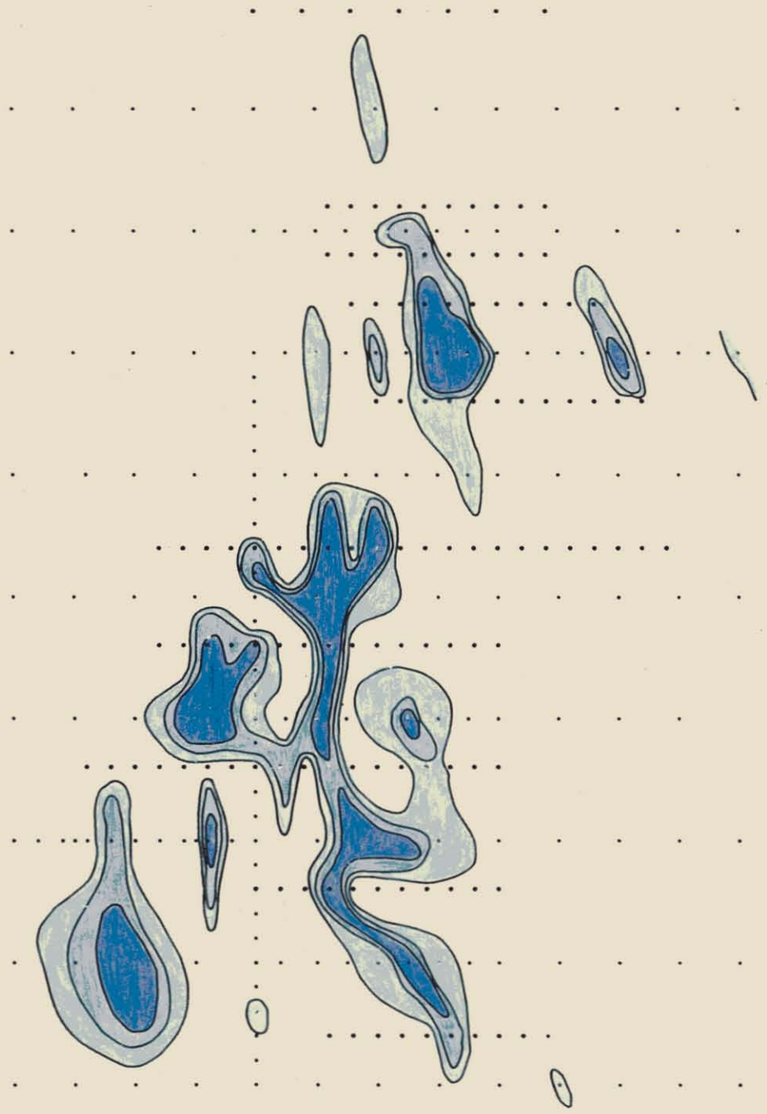
13400 N —

13300 N —

13200 N —

13100 N —

13000 N —



CONTOUR INTERVAL

37	>600 ppm
33	600 – 300 ppm
39	300 – 150 ppm
	<150 ppm

• Cyprus Infill Lines

5 cm

9800 E | 9900 E | 10000 E | 10100 E | 10200 E | 10300 E | 10400 E

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ELLIOTT BAY – E.L. 40/85

WART HILL

SOIL GEOCHEMISTRY

LEAD

DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 20 0 40 80 METRES

FIG. 14

109

N. W. Computer Aided Drafting Centre (004 354315)

892111

13500 N —

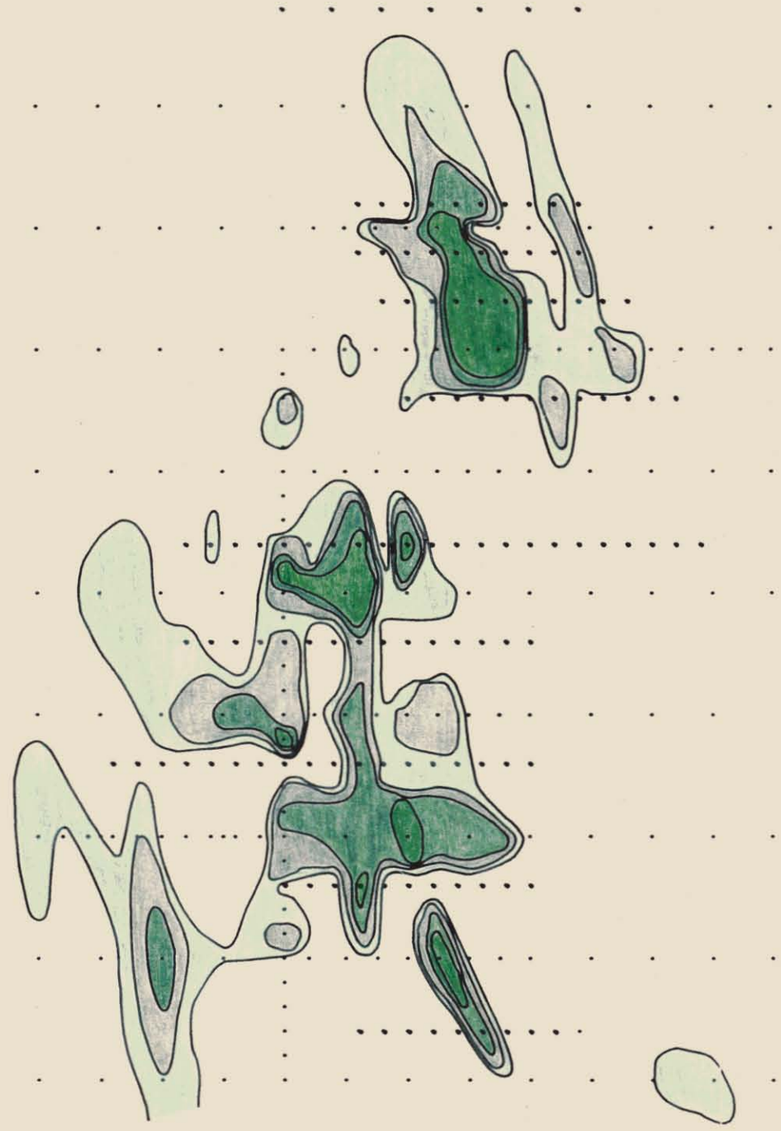
13400 N —

13300 N —

13200 N —

13100 N —

13000 N —



9800 E | 9900 E | 10000 E | 10100 E | 10200 E | 10300 E | 10400 E

CONTOUR INTERVAL

45	>2000 ppm
43	2000 – 1000 ppm
42	1000 – 500 ppm
44	500 – 250 ppm
	<250 ppm

• Cyprus Infill Lines

5 cm

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ELLIOTT BAY – E.L. 40/85

WART HILL

SOIL GEOCHEMISTRY

ZINC

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500 (20 0 40 80 METRES)

FIG. 15

110

892112

13500 N —

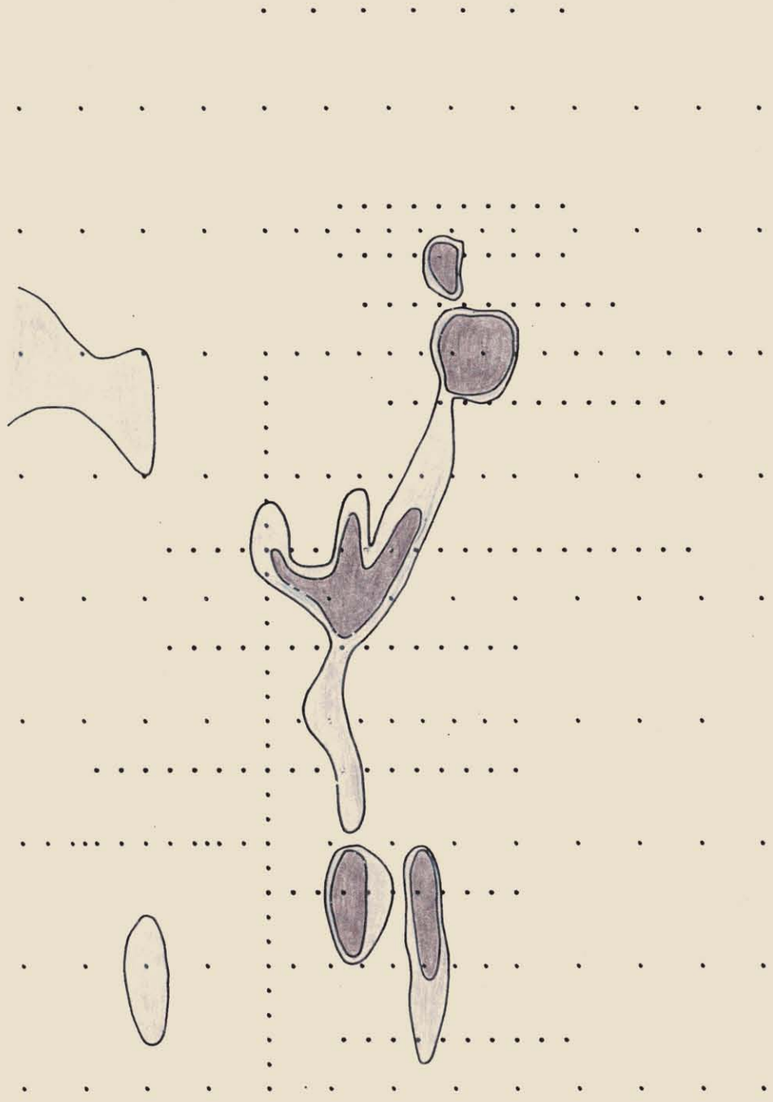
13400 N —

13300 N —

13200 N —

13100 N —

13000 N —



9800 E | 9900 E | 10000 E | 10100 E | 10200 E | 10300 E | 10400 E

69 > 3 ppm

71 3 — 1.5 ppm

< 1.5 ppm

— = Below limit of detection

. Cyprus Infill Lines

5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY — E.L. 40/85

WART HILL

SOIL GEOCHEMISTRY

SILVER

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500 20 0 40 80 METRES

FIG. 16

111

N. W. Computer Aided Drafting Centre (004 354115)

892113

13500 N —

13400 N —

13300 N —

13200 N —

13100 N —

13000 N —

9800 E | 9900 E | 10000 E | 10100 E | 10200 E | 10300 E | 10400 E

CONTOUR INTERVAL

63	>80 ppm
64	80 – 60 ppm
60	60 –35 ppm
58	35 – 12 ppm
	<12 ppm

· Cyprus Infill Lines

5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
WART HILL
SOIL GEOCHEMISTRY
ARSENIC

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DATE : April '87
REVISIONS :
FILE No.

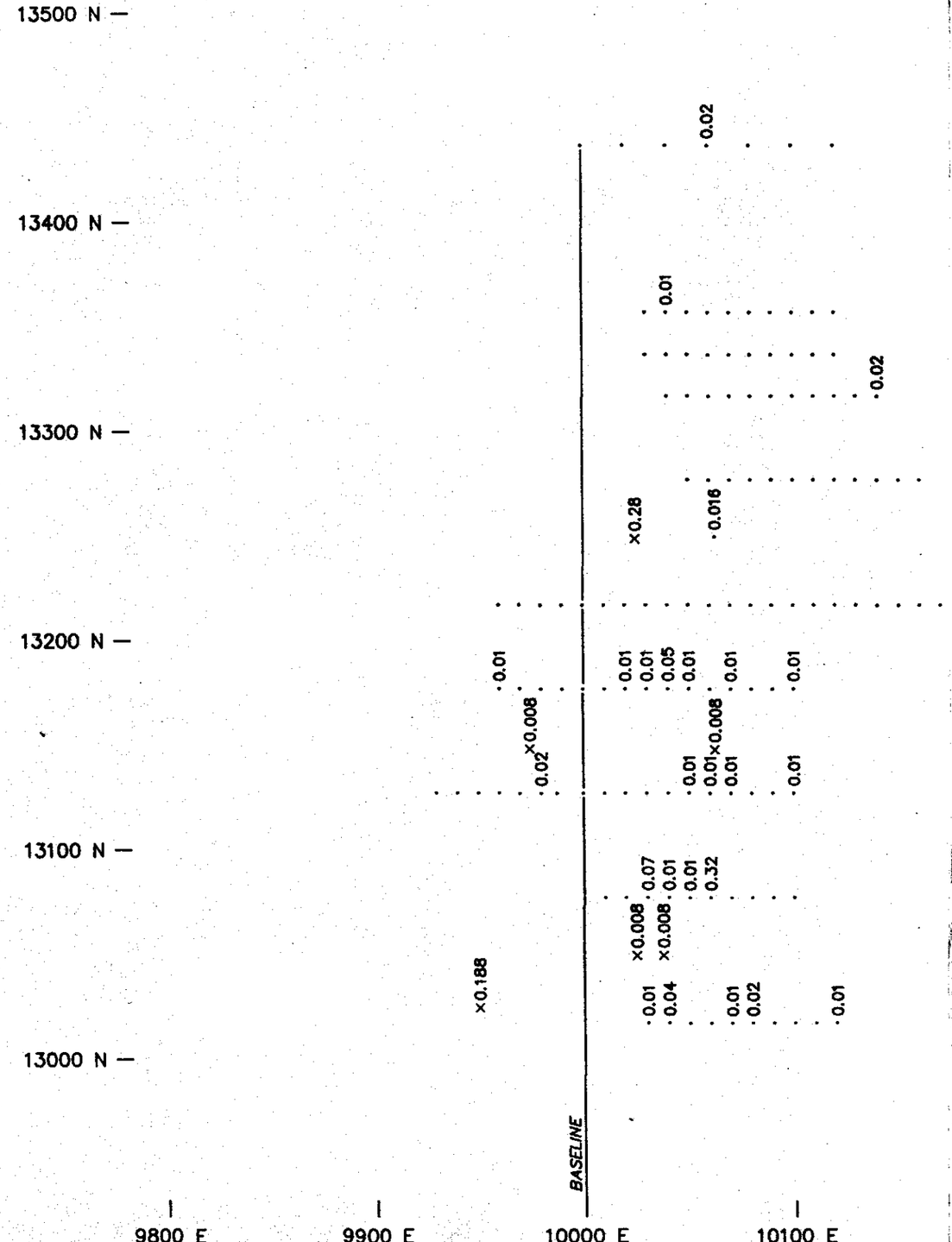
SCALE 1 : 2500 20 0 40 80 METRES

FIG. 17

112

N. W. Computer Aided Drafting Centre (004 354315)

892114



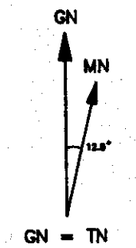
NOTE:

Only samples above detection limit are marked

· Cyprus Sample

× Geopeko Sample

5 cm



CYPRUS MINERALS AUST. CO. & POSEIDON LTD.	
ELLIOTT BAY – E.L. 40/85 WART HILL SOIL GEOCHEMISTRY GOLD	DRAWN BY : C.T. DRAFTSMAN : T.G.D.S. DATE : April '87 REVISIONS : FILE No.
SCALE 1 : 2500	FIG. 18

ppm) which occurs over the northern most massive sulfide pod. A broad, low tenor anomaly occurs in the northeastern part of the grid and covers both volcanics and black shales. Another low tenor anomaly occurs on both sides of the baseline (10000E) between 13100N and 13200N. This anomaly is coincident with sericite altered volcanics and an area of massive sulfide float fragments which were excavated in a small trench by Geopeko.

Lead: Cyprus values range from 5 to 5000 ppm (Figure 14, Enclosure 58). The highest value obtained by Geopeko was 4.9%. Two significant anomalies occur. The northern most covers Lens 'A' and forms a discrete elongate zone 30 meters wide and 120 meters long. The southern most zone is complex. It extends from the area of Lens 'B' northwestward along the zone of sericite alteration to an area of low lying swamp where massive sulfide float is found on surface. The anomaly is finger-like and bulbous and may represent a number of smaller discrete mineralized zones. Its total length is 200 meters.

Zinc: Cyprus values range from 5 ppm to 3.15% (Figure 15, Enclosure 60). The highest Geopeko value was 10.2% over Lens 'A'. The nature of anomalies is similar to that of lead with a relatively discrete northern zone and a bulbous, finger-like southern zone. Of particular interest is the untested northern most part of the southern zone (centered at 1320N:10025E) where massive sulfide float from an old trench excavation occurs.

Silver: Cyprus samples range from <0.5 to 5 ppm (Figure 16, Enclosure 61). Geopeko values up to 305 ppm occur. Anomalies occur over both massive sulfide lenses and around 13200N:10025E coincident with copper, lead, zinc anomalies.

Arsenic: Geopeko did not assay for arsenic. Data presented here is solely from Cyprus work therefore anomalies tend to be incomplete. Values range from <1 to 270 ppm (Figure 17, Enclosure 62). A discrete anomaly is located immediately north of Lens 'A' and would presumably enclose the lens if resampling of Line 13300N had taken place. Other north-south trending anomalies

occur coincident with copper, lead, zinc and silver anomalies. Given the available data it appears arsenic is an adequate element in further delineating mineralization in this area. One anomalous value of arsenic (92 ppm) on the far eastern end of Line 13280N lies within black shale. Anomalous arsenic appears to be common in black shale units especially in those which contain some sulfide.

Gold: No attempt has been made to contour gold values (Figure 18). Values range from <0.008 to 0.28 in the combined Cyprus/Geopeko samples. From the geochemical response obtained it appears there is a cluster of anomalous gold in the area but these are not necessarily coincident with known sulfide mineralization.

Rock Geochemistry

The zone of soil geochemical anomalism around 13200N:10025E was excavated by Geopeko and a small massive sulfide pod was located. Fragments of this mineralization were collected and assayed. Results are shown on Figure 11.

Geophysics

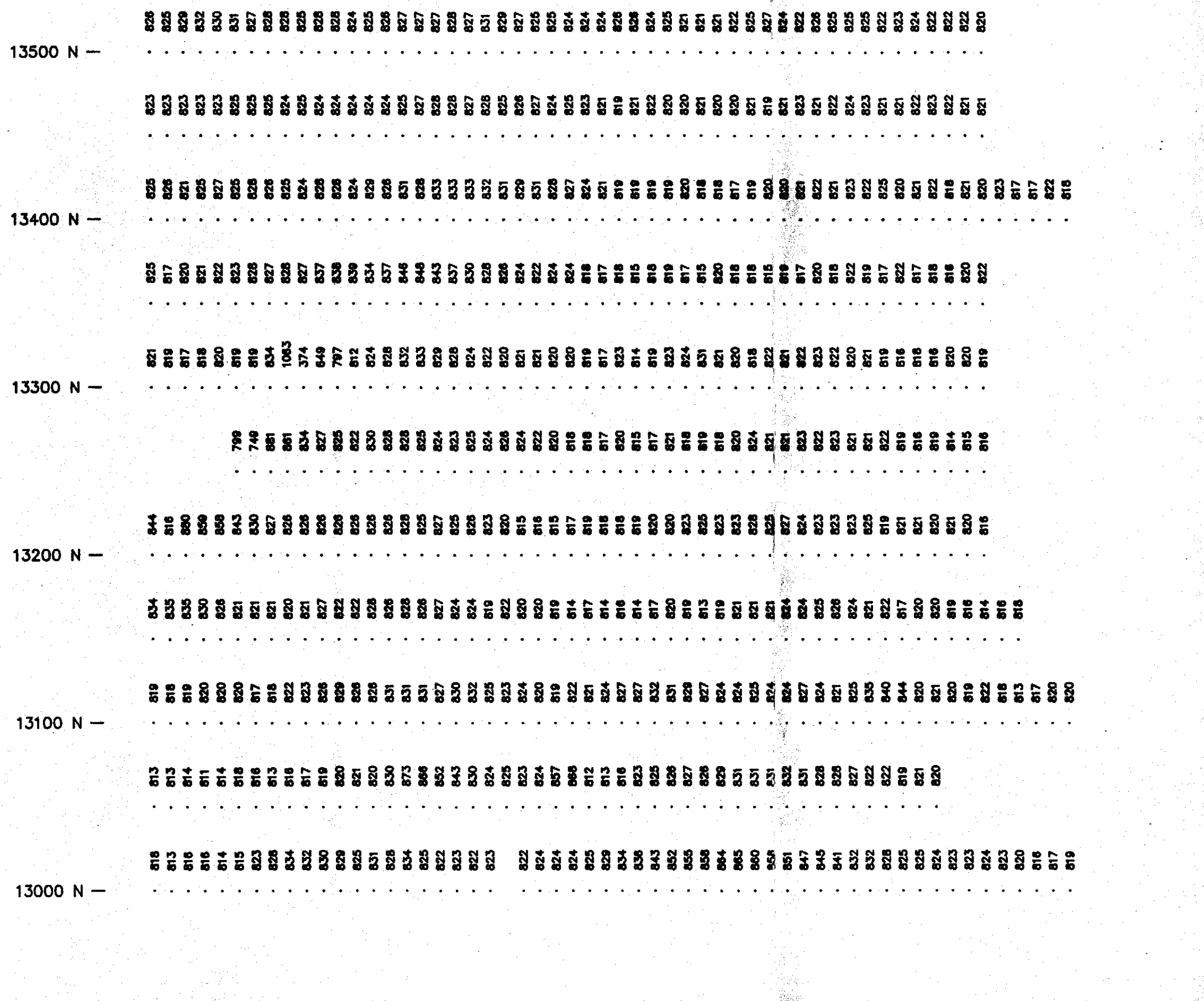
Magnetics: A ground magnetic survey conducted over the grid proved to be inconclusive. No significant features with respect to mineralization or structure were recognized (Figures 19 to 21).

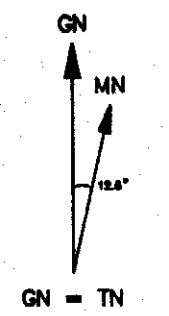
Geophysics - MAXMIN-EM: A MAXMIN survey was completed over the grid. Little or no response is seen on 222 or 888 Hz, however at high frequency (3555 Hz) and on the normalized data plot (3555-222 Hz) several subtle but discrete zones of anomalism occur (Figures 22 to 25). These are:

Area 1

Line 13350N from 10050E to 10125E
Line 13400N from 10050E to 10125E
Line 13450N from 10025E to 10075E

892117





NOTE: Add 62000 to all values

5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WART HILL

GROUND MAGNETICS

Data

DRAWN BY : C.T.

DRAFTSMAN : T.G.O.S.

DATE : April '87

REVISIONS :

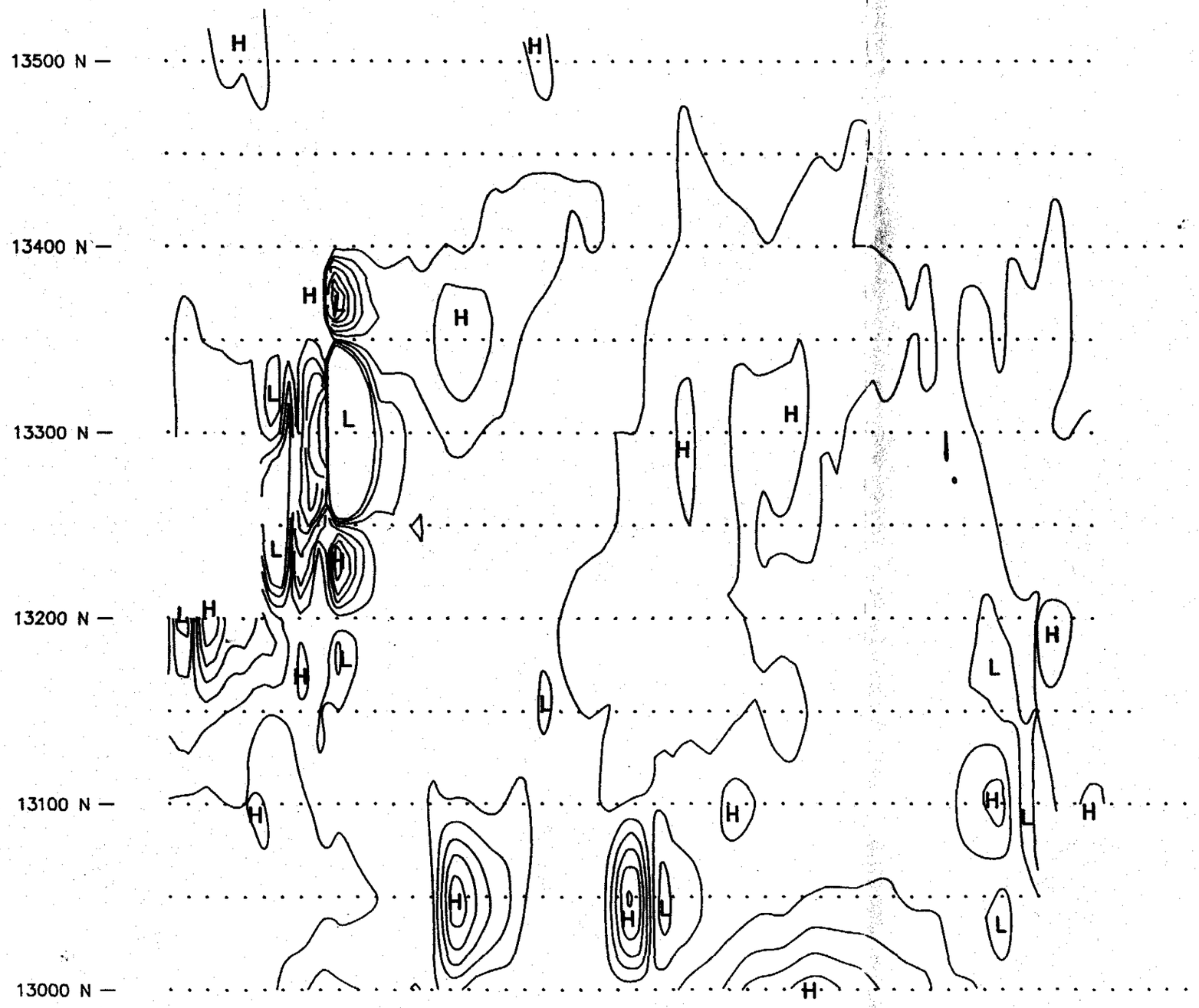
FILE No.

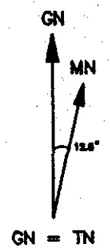
SCALE 1 : 2500 (20 0 40 80 METRES)

FIG. 19

116

892118





LEGEND:

H = Magnetic High

L = Magnetic Low

Contour Interval = 10nT

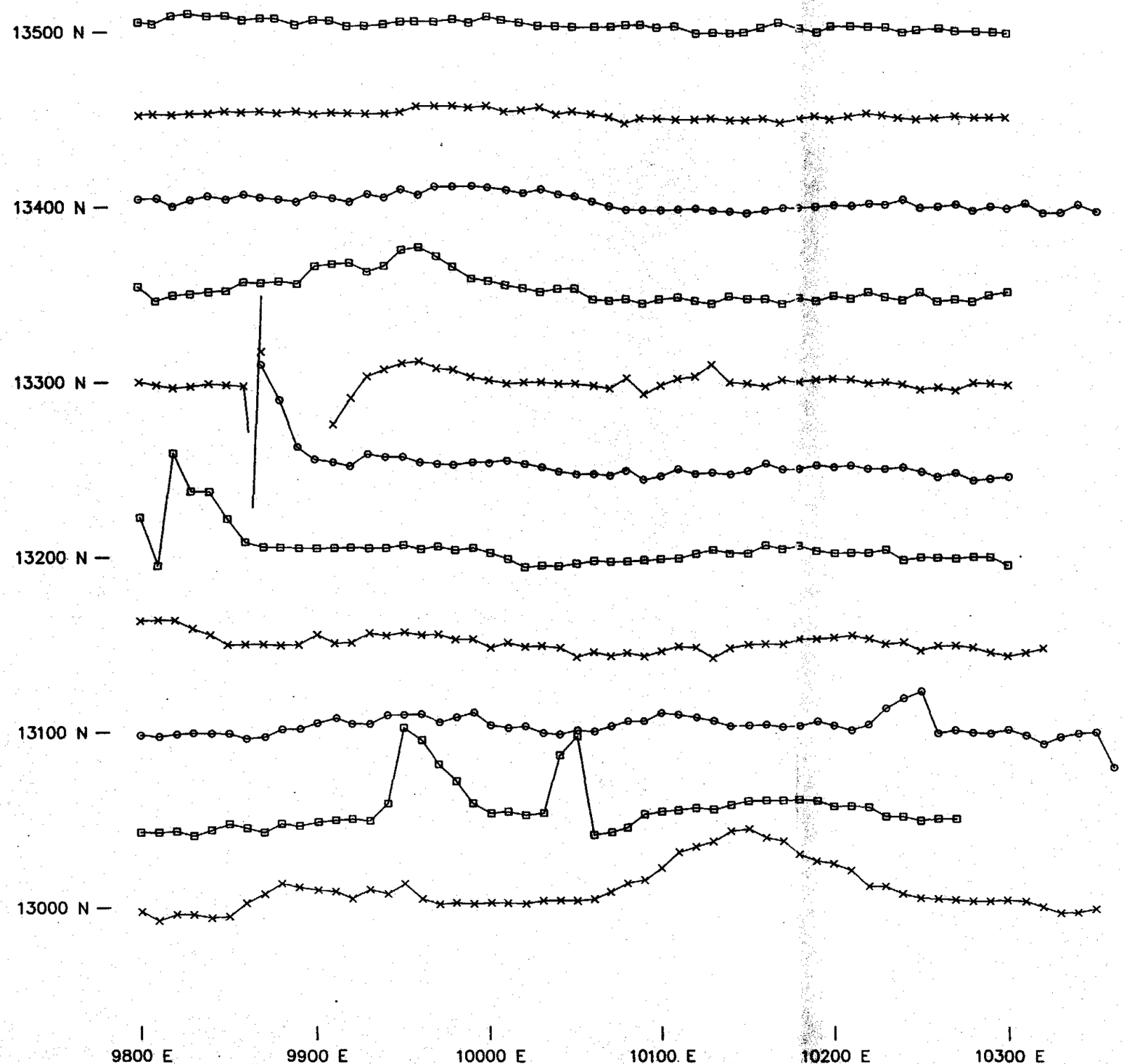
5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.	
ELLIOTT BAY – E.L. 40/85 WART HILL GROUND MAGNETICS Contours	DRAWN BY : C.T. DRAFTSMAN : T.G.D.S. DATE : April '87 REVISIONS : FILE No.
SCALE 1 : 2500	FIG. 20

117

116

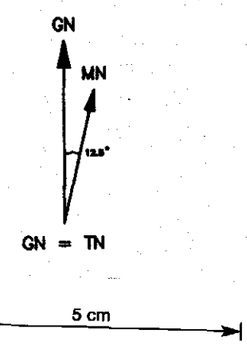
892119



NOTES:

Vertical Scale 1cm = 25nt

Base value for profiles 62820nt



5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WART HILL

GROUND MAGNETICS

Stacked Profiles

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500

FIG. 21

119

892120

PERCENT

+10.0
0
-10.0

13500 N
13400 N
13300 N
13200 N
13100 N
13000 N

9800 E
9900 E
10000 E
10100 E
10200 E
10300 E
10400 E

MAX – MIN
Tx ⟶ Rx = 100m
IN PHASE +——+
OUT OF PHASE ×– – ×

GN
MN
13.8°
GN = TN

5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
WART HILL
MAX – MIN
Stacked Profiles
222 Hz

DRAWN BY : P.M.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 2500 20 0 40 80 METRES

FIG. 22

120

892121

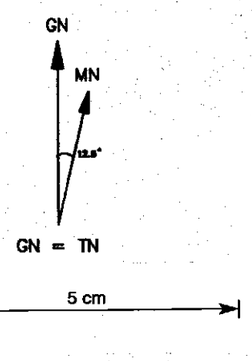
PERCENT

+10.0
0
-10.0

— 13500 N
— 13400 N
— 13300 N
— 13200 N
— 13100 N
— 13000 N

9800 E | 9900 E | 10000 E | 10100 E | 10200 E | 10300 E | 10400 E

MAX — MIN
Tx ⟶ Rx = 100m
IN PHASE +——+
OUT OF PHASE ×– –×



CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

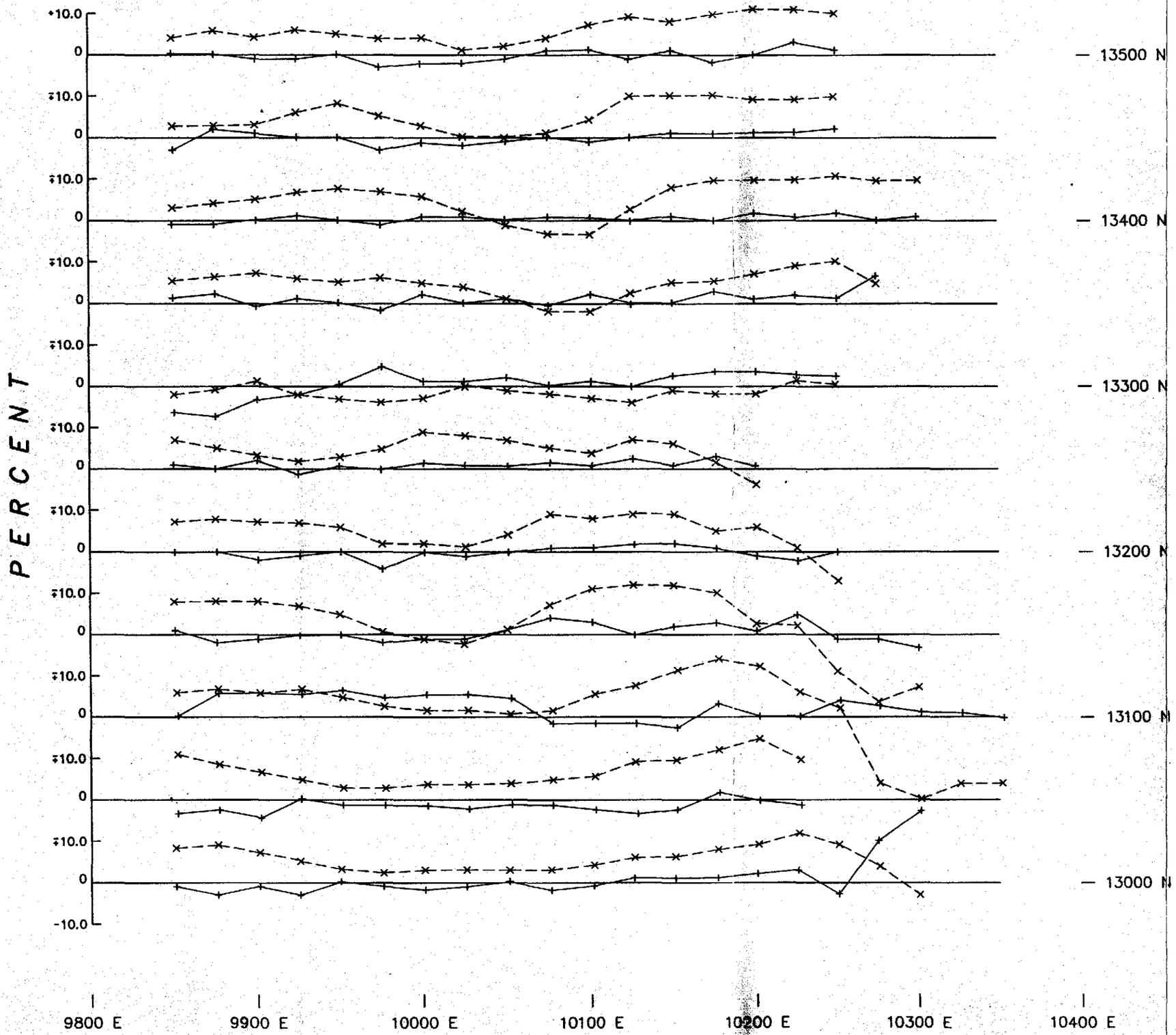
ELLIOTT BAY — E.L. 40/85
WART HILL
MAX — MIN
Stacked Profiles
888 Hz

DRAWN BY : P.M.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500

FIG. 23

892122

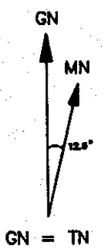


MAX — MIN

Tx ⟶ Rx = 100m

IN PHASE ——+——

OUT OF PHASE ×– – –×



5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY — E.L. 40/85

WART HILL

MAX — MIN

Stacked Profiles

3555 Hz

DRAWN BY : P.M.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

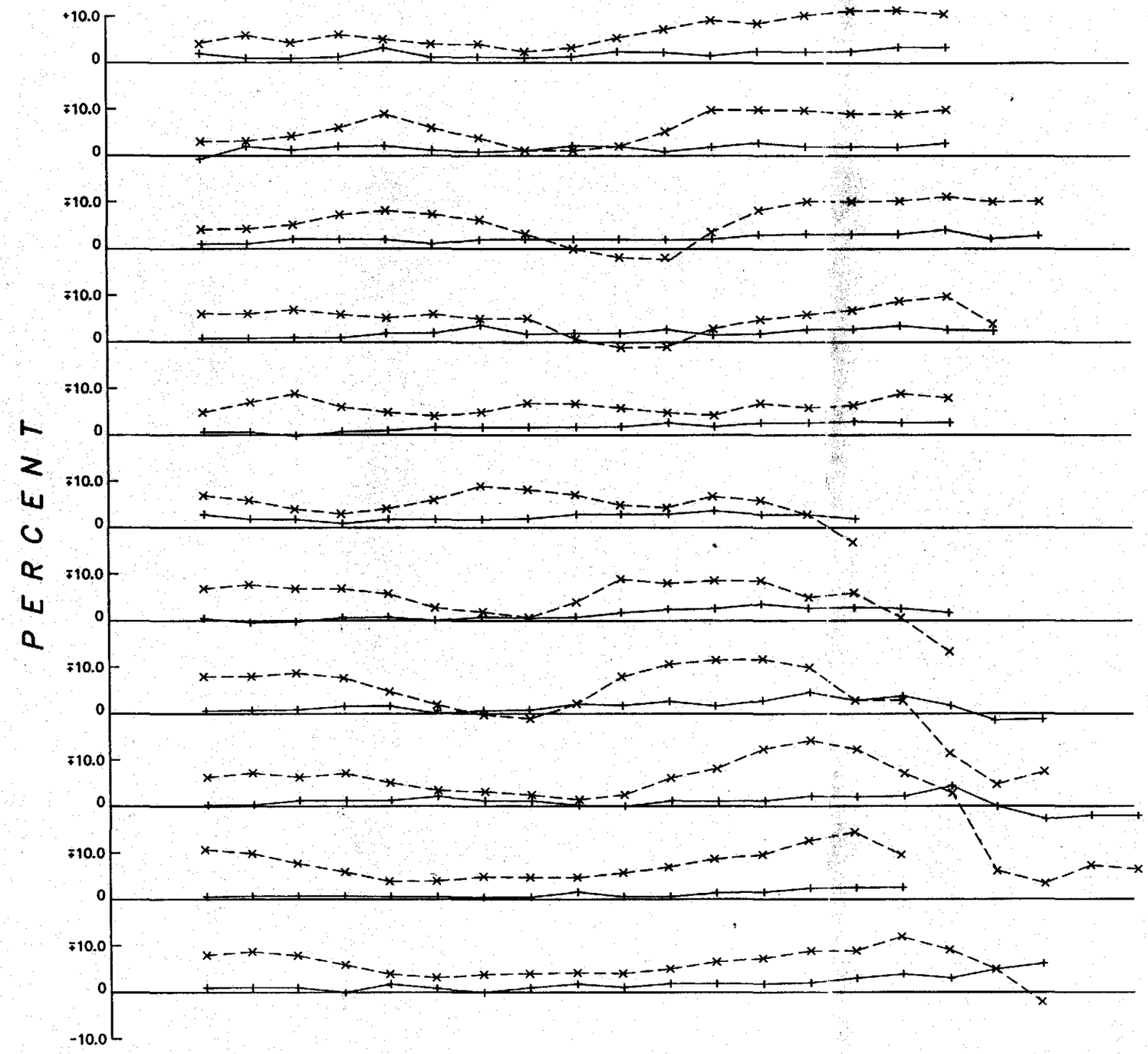
FILE No.

SCALE 1 : 2500

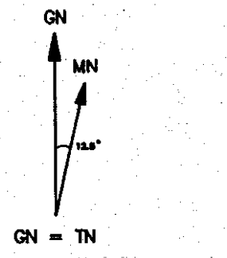
FIG. 24

121

892123



MAX – MIN
Tx ⟶ Rx = 100m
IN PHASE ⟵⟶
OUT OF PHASE ×– –×



5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
WART HILL
MAX – MIN
Stacked Profiles
3555 Hz –222 Hz

DRAWN BY : P.M.
DRAFTSMAN: T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 30 0 40 80 METRES

FIG. 25

122

The response in this area is very weak and only registers significantly in the out-of-phase signal. This area encompasses swampy ground with no outcrop along strike from Lens 'A'.

Area 2
Line 13200N from 10000E to 10050E
Line 13150N from 9975E to 10050E

The response here is also very weak and the only significant signal is in the out-of-phase component. This area is coincident with swampy ground, soil geochemical anomalies, sericite alteration and massive sulfide float fragments.

Area 3
Line 13000N at 10300E
Line 13100N from 10250E to 10350E
Line 13150N from 10225E to 10300E
Line 13200N at 10200E

The anomaly here remains open-ended to the east. There is a marked out-of-phase and a very weak in-phase response. The anomaly is coincident with and conductivity attributed to black shale of the Waterloo Creek Group.

Petrophysical Measurements

Two hand size massive sulfide samples collected from Wart Hill were subjected to petrophysical measurements by the University of Sydney's petrophysical laboratory. Conductivity of both samples was negligible (Table 1 of Appendix 1).

Conclusions

Two small pods of galena-sphalerite rich massive sulfide are located within rhyolitic volcaniclastic rock close to the stratigraphic top of the Wart Hill and Hudson River Volcanics. These are associated with sericite and chlorite-pyrite alteration. Copper, lead, zinc, silver and arsenic soil geochemical anomalies adequately delineate zones of massive sulfide mineralization.

Magnetic and MAXMIN surveys proved inconclusive. Best conductivity is attributed to black shale units. Weakly conductive zones occur coincident with swamp areas north of Lens 'A' and geochemical anomalies, swamp and massive sulfide fragments centered at 13200N:10025E.

In both Cyprus and Geopeko exploration programs EM and IP surveys have failed to locate significant conductive or chargeable bodies in the Wart Hill area.

Recommendations

- re-evaluation of gravity data
- further exploration of the horizon which hosts massive sulfide mineralization along strike

Penders Prospect

Previous Work

Penders was mined early this century. No records of production are available, however several shafts and stockpiled ore still remain. Geopeko began work on Penders (Voyager 1) in 1976. Gridding, mapping, soil sampling, rockchip sampling and VLF-EM surveys were undertaken. In the 1977-78 season gridding continued as did soil sampling, magnetic and IP surveys. In the 1978-79 season two short AQ diamond drillholes were targeted to intercept magnetic VLF-EM anomalies 1 kilometer north of Penders. The holes intersected a magnetite-pyrite 'chemical' sediment with traces of scheelite.

Continued gridding was accompanied by magnetic, VLF-EM and Turam-EM in the 1979-80 season. Drilling was recommended but not carried out and work on the area ceased.

Introduction

The prospect is located on the western coastline approximately 3 kilometers north of Low Rocky Point (Enclosure 23). The old workings are 200 to 300 meters north of where the Osmund Fault

intercepts the coast (Enclosure 1). Reconnaissance mapping and rockchip sampling this season suggested a number of geological features which may be prospective for gold. These include:

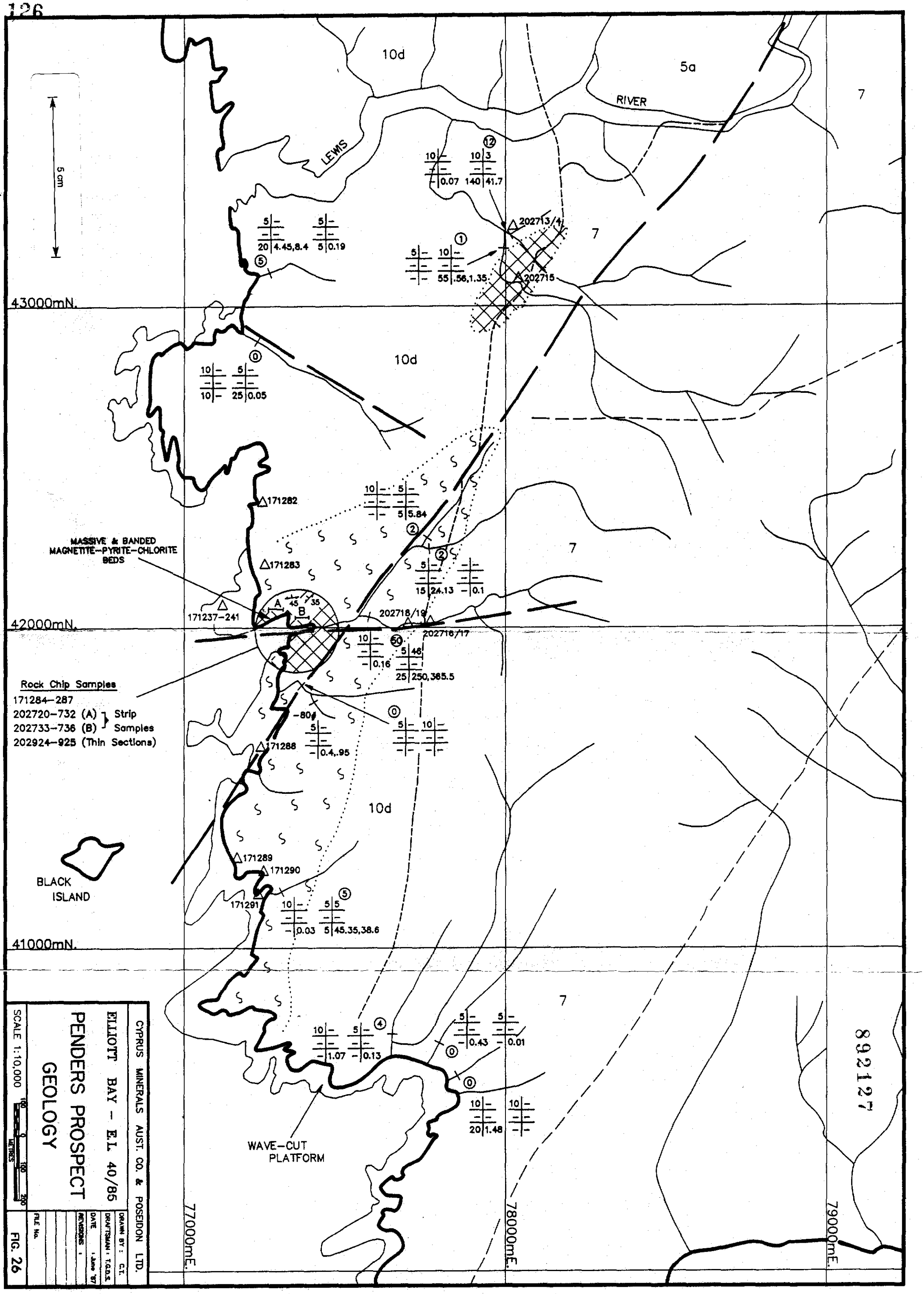
- a major deformation zone (the southern extension of the Osmund Fault)
- the contact between the Low Rocky Point granite and Western Epiclastic rocks
- Penders magnetite-pyrite beds. In early Geopeko reports values of >0.5 g/t gold were quoted.

Work during the 1986/87 season included regional mapping, rockchip sampling, sediment sampling and petrographic studies.

Geology

Rock types in the area of old workings consist of highly deformed fine to coarse grained quartz-feldspar porphyritic rhyolitic tuffs and lavas of the Western Epiclastic sequence (Penders Tuffs). They display two predominant schistosities. In the area of old workings S_1 dips approximately 45° northward. A later crenulation cleavage S_2 has a shallow (20° to 35°) dip to the northwest. Numerous quartz and quartz-chlorite veins form along the crenulation cleavage. These deformation features have been recognized as microfabrics in thin section (Appendix 4). The rocks outcrop on the western coastline south of the Lewis River. East of, and intrusive into the volcanic rocks, is the Low Rocky Point Granite. Both rock types are interpreted to be cut by the Osmund Fault although faulting is not at all obvious within the granite because of its subdued outcrop. It may be intrusion post-dates faulting. On the wave-cut platform south of the Osmund Fault volcanic rocks appear to have partly assimilated with granite forming a hybrid rock. Further south rafts of volcanics occur as pendants in granite. Numerous green dolerite dikes cut the granite. Geology is presented as Figure 26.

Widespread chlorite alteration occurs within the volcanic rocks


5 cm
10d
5a
7
RIVER
LEWIS
43000mN.
42000mN.
41000mN.
77000mE.
78000mE.
79000mE.
892127
202713/4
202715
171282
171283
171237-241
202718/19
202716/17
171288
171289
171290
171291
MASSIVE & BANDED MAGNETITE--PYRITE--CHLORITE BEDS
Rock Chip Samples
171284-287
202720-732 (A) } Strip
202733-736 (B) } Samples
202924-925 (Thin Sections)
BLACK ISLAND
WAVE-CUT PLATFORM
ELLIOTT BAY - E.L. 40/85
PENDERS PROSPECT
GEOLOGY
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.
SCALE 1:10,000
METRES
DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.
FIG. 26

and is interpreted to be areally related to the Osmund Fault. In the fault itself chlorite-magnetite veinlets are common. Chlorite alteration is locally pervasive with the granite especially at contacts. Alteration around the old workings is somewhat different in that alteration types appear to lie in conformable beds parallel to massive sulfide pods. Sulfide pods, alteration and geochemical results are shown on Figures 27 and 28. In the area of old workings there are two beds of interest. The western most (Strip 'A', Figure 27) comprises a sheared zone conformable with bedding which contains lenticular pods (2 meters by 30 centimeters) of massive pyrite-chlorite ± magnetite ± chalcopyrite rock. Alteration either side of this steeply northwest dipping bed (only 1 meter wide) consists of talc-sericite-quartz-carbonate with bedded zones of chlorite (Appendix 4). This alteration extends outward up to 20 meters on either side of the sulfide bed.

The eastern most bed (Strip 'B', Figure 28) consists of a banded magnetite-rich chlorite ± pyrite rock (1 meter thick, Plate 7). Alteration is similar to that in Strip 'A'. Further to the south along the coastline beds of fine chloritic and locally pyritic mudstone are intercalated with volcanic rocks.

Other mineralization encountered in the area occurs at the western margin of the granite. Just south of the Lewis River a small vein of quartz-pyrite ± arsenopyrite was discovered (sample 202713, Plate 6). Immediately west of the old workings on the granite contact veins of quartz-pyrite ± bornite ± chalcopyrite occur. These contain blebs of chlorite and have well defined chlorite-pyrite alteration holes.

Stream Geochemistry

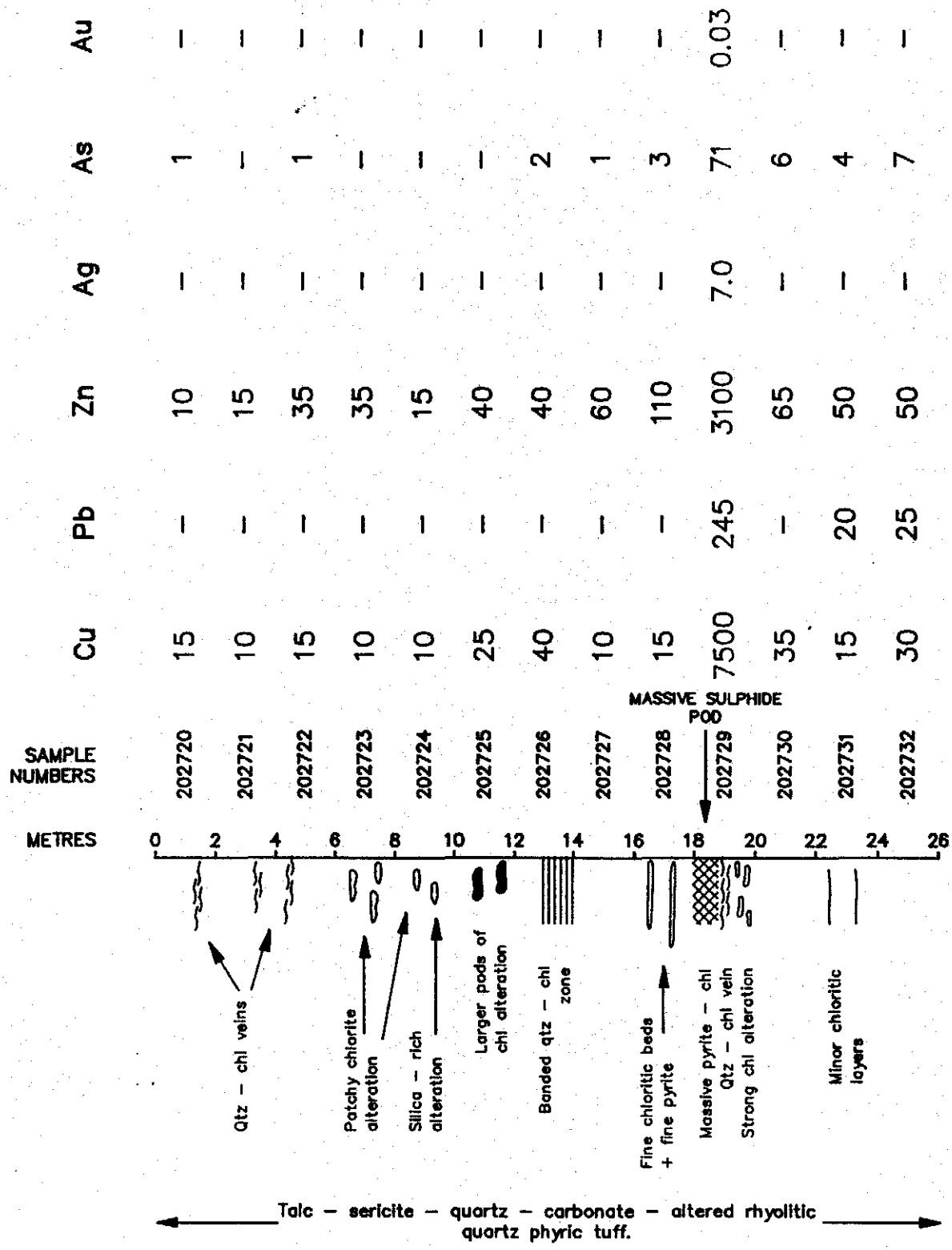
A total of 12 sites were sampled, 12 -80 mesh and 11 panned concentrate samples (Figure 26). Peak values for -80 mesh samples were as follows: 10 ppm copper and 1.07 ppm gold. Lead, zinc, silver and arsenic were below detection limits. Peak values for panned concentrate samples were 10 ppm copper, 140 ppm zinc, 46 ppm silver and 365.5 ppm gold. Lead and arsenic were below



PLATE 7 The dark black layer is a magnetite-chlorite pyrite bed.



PLATE 8 Quartz stockworked rhyolitic pyroclastic.



	Au	As	Ag	Zn	Pb	Cu
202720	–	1	–	10	–	15
202721	–	–	–	15	–	10
202722	–	1	–	35	–	15
202723	–	–	–	35	–	10
202724	–	–	–	15	–	10
202725	–	–	–	40	–	25
202726	–	2	–	40	–	40
202727	–	1	–	60	–	10
202728	–	3	–	110	–	15
202729	0.03	71	7.0	3100	245	7500
202730	–	6	–	65	–	35
202731	–	4	–	50	20	15
202732	–	7	–	50	25	30

5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

PENDERS PROSPECT

ROCK CHIP GEOCHEMISTRY STRIP 'A'

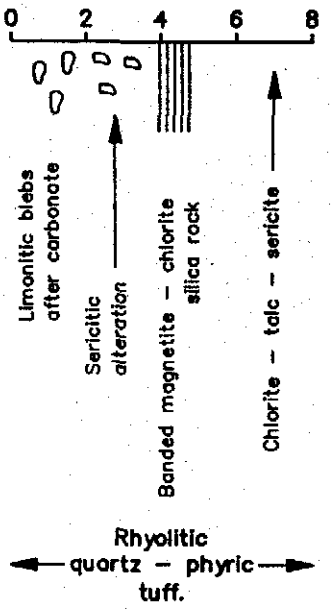
DRAWN BY : C.T.
DRAFTSMAN: T.G.D.S.
DATE : May '87
REVISIONS :
FILE NO.

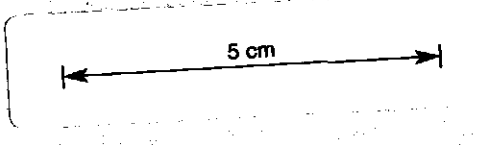
SCALE 1:200 2 0 2 4 Metres

FIG. 27

892131

SAMPLE NUMBERS	Cu	Pb	Zn	Ag	As	Au
202733	20	–	55	–	1	–
202734	550	–	110	–	7	–
202735	80	70	185	–	8	0.005
202736	50	–	55	–	1	–





CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

PENDERS PROSPECT

ROCK CHIP GEOCHEMISTRY

STRIP 'B'

DRAWN BY : C.T.
DRAFTSMAN: T.G.D.S.
DATE :May '87
REVISIONS :
FILE NO.

SCALE 1: 200 (2 0 2 4 Metres)

FIG. 28

detection limits. The most anomalous gold value in panned concentrate occurs immediately east of the old workings below the granite contact and was reflected in the gold grain count (50 grains of coarse gold).

Two samples further north also collected from below the granite contact similarly returned elevated values (ie 24.13 and 41.7 ppm gold) from panned samples. One -80 mesh sample returned 1.07 ppm gold and occurred within granite.

Rockchip Geochemistry

A total of 41 rockchip samples were collected in the area. Thirty nine of these were submitted for assay and two for petrographic description (Table 8, Figures 27, 28, Appendix 4). Anomalous copper up to 2.65%, lead up to 310 ppm, zinc up to 3100 ppm, silver up to 27 ppm, arsenic up to 450 ppm and gold up to 0.675 ppm occur in grab samples of sulfide-rich rocks within the old workings. Two meter strip samples over the sulfide-bearing pods and adjacent alteration zones returned consistently low tenor results in all elements except where the sample included sulfide. Veins of quartz with minor malachite were also sampled and locally returned anomalous copper (up to 8400 ppm). Follow-up of anomalous gold stream values immediately west of the old workings revealed quartz-pyrite $\pm$ bornite $\pm$ chalcopyrite veins with chlorite halos in highly sheared rocks. These contained up to 540 ppm copper but no gold. The source of the anomalous coarse gold in streams has not been adequately defined.

Conclusions

The sulfide pods at Penders prospect appear to be syngenetic 'chemical' precipitates. Rockchip sampling suggests they are unprospective with respect to lead-zinc, copper or gold. Anomalous gold values in streams draining the western side of the Low Rocky Point granite have not been explained. The granite contact and the Osmund Fault are considered to be excellent conduits for mineralizing fluids. The area is considered to be highly prospective.

Recommendations

- re-establishment of that part of the old grid which covers the granite contact - much of it is still intact
- geological mapping
- rockchip sampling
- soil sampling for gold

TABLE 8 PENDERS PROSPECT - ROCKCHIP SAMPLES (PPM)

Sample	Cu	Pb	Zn	Ag	As	Au	Description
171282	225	215	560	1	83	0.01	Silicified rhyolitic tuff minor py and malachite
171283	1950	10	505	-	94	0.065	Limonite-chlorite vein (0.5m)
171284	2.65%	220	940	27	450	0.675	Pyrite-magnetite-chlorite chalcopyrite massive sulfide
171285	9350	310	1800	20	550	0.2	as for 284
171286	435	70	630	1.5	31	0.02	Banded magnetite-pyrite chlorite bed (1.5m)
171287	590	-	160	2.5	6	-	Chloritic siltstone-minor py
171288	30	-	35	1	10	-	Carbonate-chlorite altered tuff with dissem pyrite
171289	15	5	50	0.5	2	-	Limonitic-chlorite tuff
171290	25	-	10	1	7	-	Chlorite-sericite-talc pyrite altered tuff
171291	30	-	30	1.5	32	0.04	Massive pyrite-quartz pod, 80% py
202713	85	5	15	-	43	-	Gossanous py-arsenopyrite quartz vein
202714	10	-	-	-	2	0.005	Quartz stockworked, quartz phyric tuff
202715	5	-	10	-	1	-	Chlorite altered, quartz stockworked tuff

Sample	Cu	Pb	Zn	Ag	As	Au	Description
202716	10	-	10	-	1	-	Sheared granite with quartz-chl-pyrite veins
202717	540	-	10	-	1	-	Chloritic microgranite with veins and dissem bn-cpy-py
202718	15	-	10	-	1	-	Chloritic tuff with veins and dissem of pyrite
202719	25	-	5	-	1	-	chloritic tuff with veins and dissem of pyrite
202737	1400	15	90	-	16	0.01	Quartz-chlorite-pyrite veins-minor cpy-malachite
202738	135	-	10	-	1	-	Quartz-chlorite vein
202739	770	-	40	-	58	0.01	Quartz-chlorite vein with trace malachite
202740	240	-	40	-	9	-	Quartz-chlorite vein
202741	8400	75	90	3	16	0.01	Quartz-chlorite vein with malachite and cpy

Voyager 24

Previous Work

Geopeko have located a zone of stratabound gold mineralization approximately one kilometer south of the Wart Hill base camp. The exploration history and geology is outlined by R Large and Large et al 1987 (Appendix 6). Diamond drilling of the prospect returned generally disappointing results. Very few high grade intersections were encountered the best being 3 meters of 17.5 g/t gold where the intercept contained a sulfide-bearing vein sub-parallel to core. Low tenor gold was however present within a silicified/carbonate altered coarse pyroclastic (50 to 200 ppb over widths up to 130 meters).

1986/87 Field Season Work

One -80 mesh and one panned concentrate sample were collected from a site which previously returned 60.5 ppm and 0.395 ppm gold in panned concentrate and -80 mesh respectively (Geopeko data).

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Using the Cyprus techniques the resampled stream returned 500.8 ppm gold (panned concentrate) and 2.02 ppm gold (-80 mesh, Enclosure 19). Anomalous gold values in streams were generally associated with anomalous lead, zinc (115 ppm, 85 ppm) in -80 mesh.

Attempts to locate the source of gold at surface failed in much the same way as Geopeko's work. Silicified and quartz veined material was sampled. Often this included stockworked rock with laminated quartz veins (Plate 8). Descriptions and assays are listed below:

Sample	Cu	Pb	Zn	Ag	As	Au	Description
171597	25	-	5	-	-	-	Quartz vein, locally laminated, colloform and banded
171598	75	15	10	-	-	-	Silicified, sericitic coarse lithic agglomerate and quartz veins
171599	35	-	5	-	-	-	Quartz veins, massive to vughy
171650	50	5	10	-	-	-	Quartz ladder veins within sericitic coarse lithic agglomerate
171992	20	145	120	-	-	-	Silicified pyritic felsic agglomerate and minor boxworks
171993	65	100	10	-	-	-	Black shale, locally pyritic

In addition a number of specimens from the prospect were submitted for petrographic description (samples 171974, V24-3, 124.5 meters and V24-3 125.4 meters). The latter two of these samples were selected from drillhole 3 which intersected sulfide material containing 17.5 g/t gold over 3 meters. Alteration minerals include quartz, siderite, albite and K-feldspar. Mineralization includes galena, sphalerite, pyrite, chalcopyrite, ilmenite and gold. Mineralization, vein formation and alteration apparently predate deformation of the rock (Appendix 4).

Site inspection revealed if quartz veins and stockwork zones contain mineralization then Geopeko's holes have drilled parallel to the dominant vein orientation. It has been suggested future

drillholes should be oriented perpendicular to this vein direction. In contrast petrographic work suggests, in some zones at least, mineralization is strained, has been rotated into the plane of schistosity during deformation and this lies perpendicular to most vein sets.

Conclusions and Recommendations

Stream sediment sampling returned the best results encountered in the entire program from both -80 mesh and panned concentrate sampling. Diamond drilling has shown gold is widespread and anomalous in drill core but no significant results are obtained in rockchip on surface.

It is recommended the grid be extended to the south and covered by detailed soil sampling as suggested by Large (Appendix 6). It is also suggested two more holes be drilled. Diamond drillholes should be oriented perpendicular to dominant vein sets. This may test the hypothesis that quartz veins also contain gold mineralization.

Voyager 18-23 Coastal Section

Previous Work

Geopeko identified a stratigraphic horizon on the western coastline which contained dolomitic siltstones. Within these they found disseminated 'replacement' copper mineralization (V18 and 23). Rockchip sampling and mapping were undertaken. Grades of up to 0.1% copper were obtained but assays for gold for the most part were absent (Enclosure 23).

1986/87 Field Season Work

Work comprised evaluation of the coastline for potential gold-bearing replacement horizons involved reconnaissance prospecting and rockchip sampling. The V18-23 zone comprises rocks of the Mainwaring Group which include siltstones, dolomitic siltstones, green volcaniclastic sandstone of andesite derivation and andesitic-basaltic lavas. Many rocks appear to be calc-silicate-rich and epidote was most common. Quartz and siderite veining was also common. Large boudins of quartz or quartz-epidote occur in

dolomitic horizons and in one locality (north of Copper Creek mouth) a hydrothermal(?) breccia with an epidote matrix occurs. In many places along the coastal strip quartz stockworked zones up to 500 square meters occur. These have no associated alteration halos (Plate 9).

Rock Geochemistry

A total of 22 rockchip samples were collected (Enclosures 19 to 21 and Appendix 7A). Values range from 5 ppm to 2.15% copper, <5 to 30 ppm lead, 15 to 375 ppm zinc, 1 to 36 ppm arsenic and <0.008 to 0.055 gold. Only one sample contained gold above detection limits and only two samples contained greater than 1000 ppm copper. No other elements were considered anomalous.

Conclusions and Recommendations

Anomalous gold was not obtained from the rockchip sampling program. No further work is recommended.

Voyager 6

Previous Work

Geopeko identified one aeromagnetic anomaly on the northern contact of the Low Rocky Point granite (Enclosure 23). The area was gridded, mapped, soil and rockchip sampled (analyses for copper, lead, zinc, iron, tungsten, tin) and surveyed by VLF-EM and magnetic methods. Rockchips returned up to 0.14% copper, 430 ppm lead and 0.74 ppm gold from gossanous tuff.

1986/87 Field Season Work

Work consisted of stream sediment sampling, reconnaissance mapping and rockchip sampling.

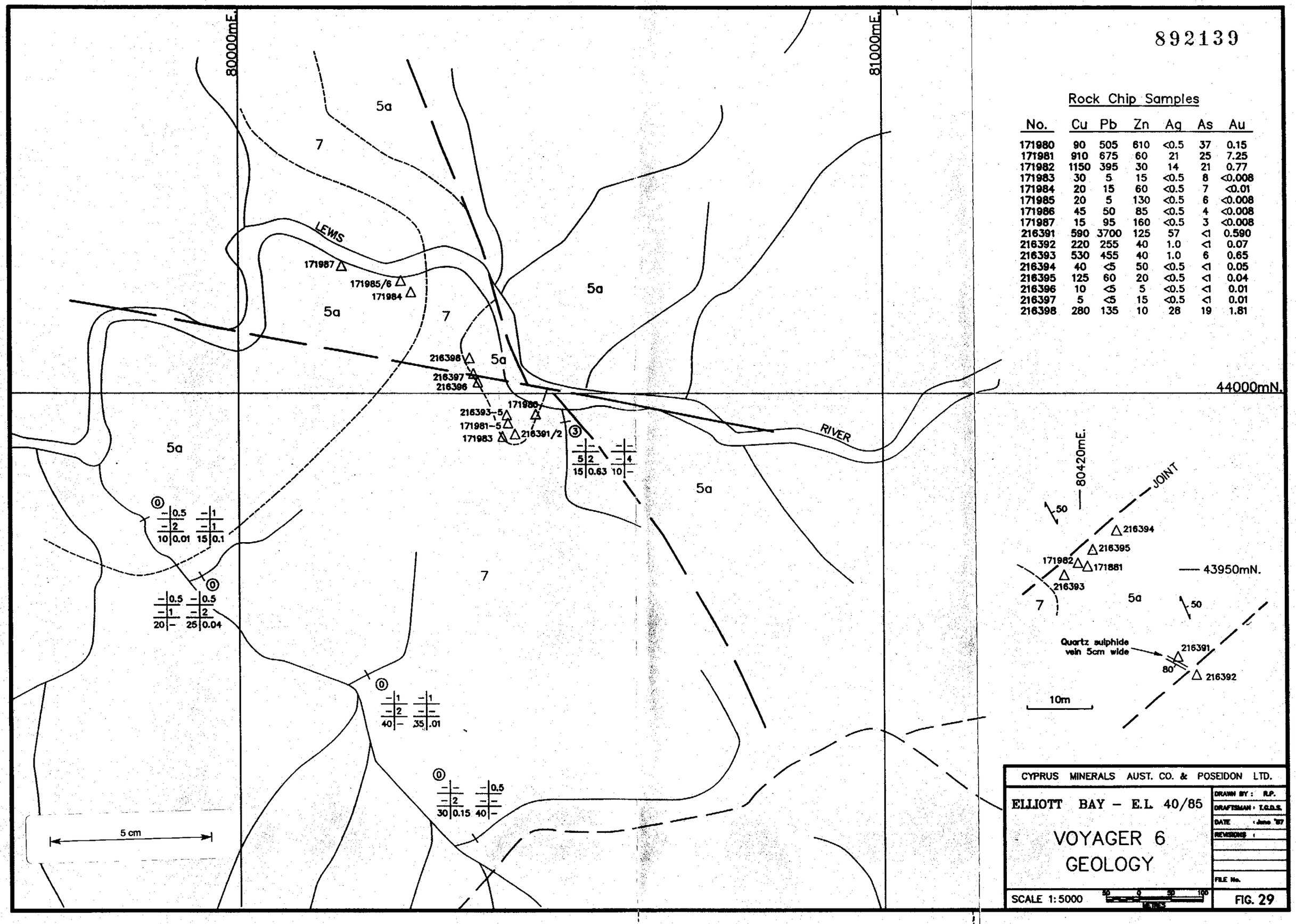
Geology

The prospect is located on the southern bank of the Lewis River where a narrow finger of granite penetrates northward into felsic volcanics of the Wart Hill and Hudson River Volcanics (Figure 29). The contact zone is not well exposed but appears to be locally sheared. Granite adjacent to the contact is weakly



PLATE 9 Rockchip sampling large quartz stockwork zones within the Mainwaring Group.

892139



Rock Chip Samples

No.	Cu	Pb	Zn	Ag	As	Au
171980	90	505	610	<0.5	37	0.15
171981	910	675	60	21	25	7.25
171982	1150	395	30	14	21	0.77
171983	30	5	15	<0.5	8	<0.008
171984	20	15	60	<0.5	7	<0.01
171985	20	5	130	<0.5	6	<0.008
171986	45	50	85	<0.5	4	<0.008
171987	15	95	160	<0.5	3	<0.008
216391	590	3700	125	57	<1	0.590
216392	220	255	40	1.0	<1	0.07
216393	530	455	40	1.0	6	0.65
216394	40	<5	50	<0.5	<1	0.05
216395	125	60	20	<0.5	<1	0.04
216396	10	<5	5	<0.5	<1	0.01
216397	5	<5	15	<0.5	<1	0.01
216398	280	135	10	28	19	1.81

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ELLIOTT BAY – E.L. 40/85

VOYAGER 6
GEOLOGY

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DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

SCALE 1:5000

FIG. 29

sericitized and contains hematite veinlets. Volcanics adjacent to the contact contain magnetite-chlorite and quartz-gossan veinlets. The volcanics are intensely chloritized, seriticized and limonitic. Massive magnetite float occurs within talus in the prospect area. The Lewis River Fault Zone is interpreted to pass through the prospect. Joints in the area have a northeasterly trend and are vertical.

Stream Geochemistry

A total of 15 sites were sampled for -80 mesh and panned concentrate samples (Enclosures 15 and 21). Most samples were obtained from within the granite. Values of up to 5 ppm copper, 5 ppm lead, 50 ppm zinc, 4 ppm arsenic and 0.9 ppm gold were obtained from -80 mesh and 5 ppm copper, 10 ppm lead, 330 ppm zinc, 4 ppm arsenic, 0.5 ppm silver and 22.6 ppm gold from panned concentrates. Five -80 mesh samples are considered to be anomalous in gold (>0.1 ppm) with numerous others above detection limits. In contrast only one panned concentrate sample returned greather than 20 ppm gold. This suggests the granite is shedding fine but not coarse gold unlike much of the volcanic sequence. Most anomalous values occur in the westernmost streams sampled (1:10000 stream sediment maps). This area is interpreted to drain the southern extension of the Osmund Fault Zone. Similarly streams to the west of Voyager 6 which lie within the zone contain anomalous gold (eg 0.105 ppm in Geopeko's sampling).

Rockchip Geochemistry

Abundant exposure occurs on the southern bank of the Lewis River. Here 16 rockchip samples were collected. These included a number of 5 meter strip samples. Descriptions and results are listed in Table 9. Values of up to 1150 ppm copper, 3700 ppm lead, 610 ppm zinc, 57 ppm silver, 37 ppm arsenic and 7.25 ppm gold were recorded. Anomalous values for all elements occurred within quartz-limonite, gossanous veins within chlorite and sericite altered rhyolite tuff adjacent to granite contacts.

TABLE 9 VOYAGER 6 - ROCKCHIP SAMPLES (PPM)

Sample	Cu	Pb	Zn	Ag	As	Au	Description
171980	90	505	610	<0.5	37	0.15	Pughy chloritic shear in rhyolitic tuffs within 50 meters of granite contact
171981	910	675	60	21	25	7.25	Limonitic quartz vein in sericitized rhyolitic tuffs
171982	1150	395	30	14	21	0.77	Limonitic quartz vein in sericitized rhyolitic tuffs
171983	30	5	15	<0.5	8	<0.08	Specular hematite veinlets in sericitized coarse grained granite
171984	20	15	60	<0.05	7	<0.1	Fractured, limonitic, chloritic quartz phyric rhyolitic tuff
171985	20	5	130	<0.5	6	<0.008	Chloritic quartz phyric tuff with finely disseminated magnetite
171986	45	50	85	<0.5	4	<0.008	Same location 171985, massive magnetite
171987	15	95	160	<0.5	3	<0.008	Chloritic quartz phyric tuff with patches of limonite sub/ schistocity
216391	590	3700	125	57	<1	0.59	Quartz sulfide vein 297.8 ≤5 centimeters wide
216392	220	225	40	1	<1	0.7	Limonitic and quartz veined quartz phyric tuff 5 meter chip sample
216393	530	455	40	1	6	0.65	Limonitic and quartz veined quartz phyric tuff 5 meter chip sample Resample of 171981 and 171982
216394	40	<5	50	<0.5	<1	0.05	Limonitic and quartz veined quartz phyric tuff 5 meter chip sample Resample of 171981 and 171982
216395	125	60	20	<0.5	<1	0.04	Limonitic and quartz veined quartz phyric tuff 5 meter chip sample Resample of 171981 and 171982
216396	10	<5	5	<0.5	<1	0.01	Quartz hematite/magnetite veining on granite/tuff contact

Sample	Cu	Pb	Zn	Ag	As	Au	Description
216397	5	<5	15	<0.5	<1	0.01	Quartz hematite/magnetite veining on granite/tuff contact
216398	280	135	10	28	19	1.81	Limonitic and quartz veined tuffs 10 meters from granite contact

Conclusions

Gold mineralization occurs in veins within altered volcanic rocks on the margin of granite contacts. Fine gold occurs in -80 mesh samples within the granite in an area which drains the inferred Osmund Fault zone.

Recommendations

While potential for a sizeable deposit occurring at Voyager 6 itself seems limited, the presence of mineralization at the granite contact warrants further investigation. The similarity of features (complex magnetics, gold anomalism in streams, rocks and soils) in Voyager 6, part of Penders prospect and Magnetic Anomaly 3, suggest intrusive-related gold mineralization does occur on the margins of granites at Elliott Bay. More detailed mapping and stream sampling of granite contacts is required.

AIR MAGNETIC ANOMALIES.....

Porphyry Dolerite Contact

Previous Work

The only ground coverage in this area has been Geopeko's -80 mesh stream sediment geochemistry.

Introduction

This area lies in the far northeastern corner of EL 40/85 in headwaters of the Hudson River (Plate 10).

892143



PLATE 10 Porphyry Dolerite Contact. View to west from Ordovician sandstone ridge.

- Topographic low in right foreground underlain by dolerite
- Low ridge striking from north-south beyond the dolerite is a slither of Precambrian metasediments in the fault zone between dolerite and porphyry
- Wart Hill and Mt Osmund on horizon

Interest was initially drawn to the area by several anomalous features:

- air magnetic anomaly associated with a dolerite and possibly underlain by Ordovician Gordon Limestone
- ridge coincident with the eastern Elliott Point Porphyry/dolerite contact interpreted to be silicification
- 230 ppm gold in pan concentrate

With mafic rocks outcropping in the area all samples were additionally assayed for platinum group elements and nickel, cobalt, chromium.

Gridding

A single 800 meter long east-west line from the porphyry to just east of the licence boundary was surveyed. The line is partly covered by bedrock soil sampling, magnetics and MAXMIN. Gridding is relatively easy, the area is covered by open heath (Plate 10).

Geology

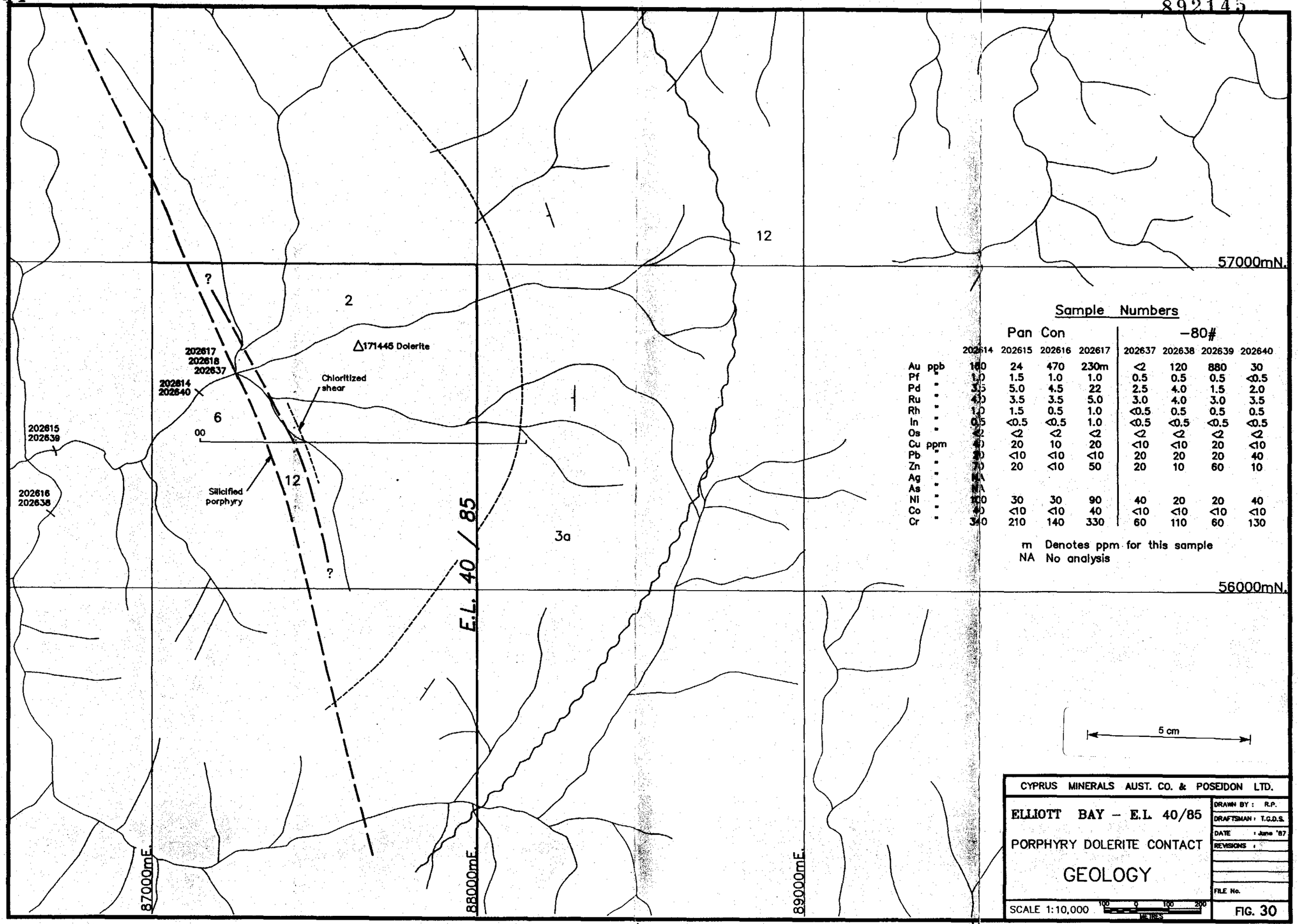
The prospect is located on a major fault which has been active from early Cambrian until the Tertiary (Figure 30, Enclosure 63). It is the locus for:

- Elliott Point Porphyry's intrusive contact with the Precambrian
- Jurassic? dolerite intrusion
- graben faults controlling Tertiary sedimentation in Macquarie Harbor

There are four main lithological components in the area:

144

892145



Sample Numbers

		Pan Con				−80#			
		202614	202615	202616	202617	202637	202638	202639	202640
Au	ppb	160	24	470	230m	<2	120	880	30
Pf	"	1.0	1.5	1.0	1.0	0.5	0.5	0.5	<0.5
Pd	"	3.5	5.0	4.5	22	2.5	4.0	1.5	2.0
Ru	"	4.0	3.5	3.5	5.0	3.0	4.0	3.0	3.5
Rh	"	1.0	1.5	0.5	1.0	<0.5	0.5	0.5	0.5
In	"	0.5	<0.5	<0.5	1.0	<0.5	<0.5	<0.5	<0.5
Os	"	<2	<2	<2	<2	<2	<2	<2	<2
Cu	ppm	40	20	10	20	<10	<10	20	<10
Pb	"	20	<10	<10	<10	20	20	20	40
Zn	"	70	20	<10	50	20	10	60	10
Ag	"	NA							
As	"	NA							
Ni	"	100	30	30	90	40	20	20	40
Co	"	40	<10	<10	40	<10	<10	<10	<10
Cr	"	340	210	140	330	60	110	60	130

m Denotes ppm for this sample
NA No analysis

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PORPHYRY DOLERITE CONTACT

GEOLOGY

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DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

SCALE 1:10,000 100 0 100 200 METRES

FIG. 30

- Elliott Point Porphyry, a medium-coarse quartz feldspar porphyry

- slither of Precambrian phyllite and quartzite between 225 and 300E interpreted to be the original porphyry Precambrian contact

- dolerite, medium grained, probably Jurassic age on the basis of absence of veining and alteration and intrusive contact with Ordovician sediments

- sandstone on eastern end of line mapped as basal Ordovician (see Mines Department 1:250 000 Port Davey). These sandstones dip west and the dolerite occupies the Gordon Limestone stratigraphic position

Stream Geochemistry

Four stream sediment and pan concentrate sample sites were taken immediately downstream from the porphyry/dolerite contact. Stream detritus is predominantly derived from the porphyry. Analytical details are presented on Figure 14. A pan concentrate sample (202617) contains anomalous gold and possibly anomalous palladium (230 ppm and 22 ppb respectively). An anomalous -80 mesh at 202639 contains 0.88 ppm gold with 0.47 ppm gold in pan concentrate at the same site. This could be viewed with suspicion as the concentrates usually return higher values than -80 mesh. The significance of the platinum group elements is difficult to assess due to small data base to work from in the Elliott Bay and Cape Sorell licences.

Soil Geochemistry

B/C-horizon soils have been sampled at 25 meter spacings between 0 and 375E covering the porphyry, Precambrian and dolerite contacts. Samples were assayed for copper, lead, zinc, silver, arsenic, gold but not platinum group elements. All gold and silver are below detection limits. Base metals are slightly elevated on the porphyry/phyllite contact and chloritic clay zone between phyllite and dolerite. Base metals are less than 100 ppm.

Recommendations

No further work is recommended.

Magnetic Anomaly 1

A traverse line, 8800N was extended eastward from the Lewis River grid. Magnetic intensity readings were taken every 25 meters. The center of the anomaly occurred at 11000E. Short traverses north and south were impeded by dense bush. The center of the anomaly appears to be south of Line 8800N and probably occurs along the contact between porphyry and rhyolitic tuffs. Soil samples were collected along Line 8800N and one sample was collected at 8720N:11000E. No anomalous geochemical values were recorded (Figure 31).

Intensely chlorite altered rhyolitic tuff was encountered on and to the west of the anomaly center. A large quartz outcrop coincident with the anomaly suggests it may be a fault related feature. The source of the magnetic anomaly has not been explained as no significant sulfide or magnetite was discovered.

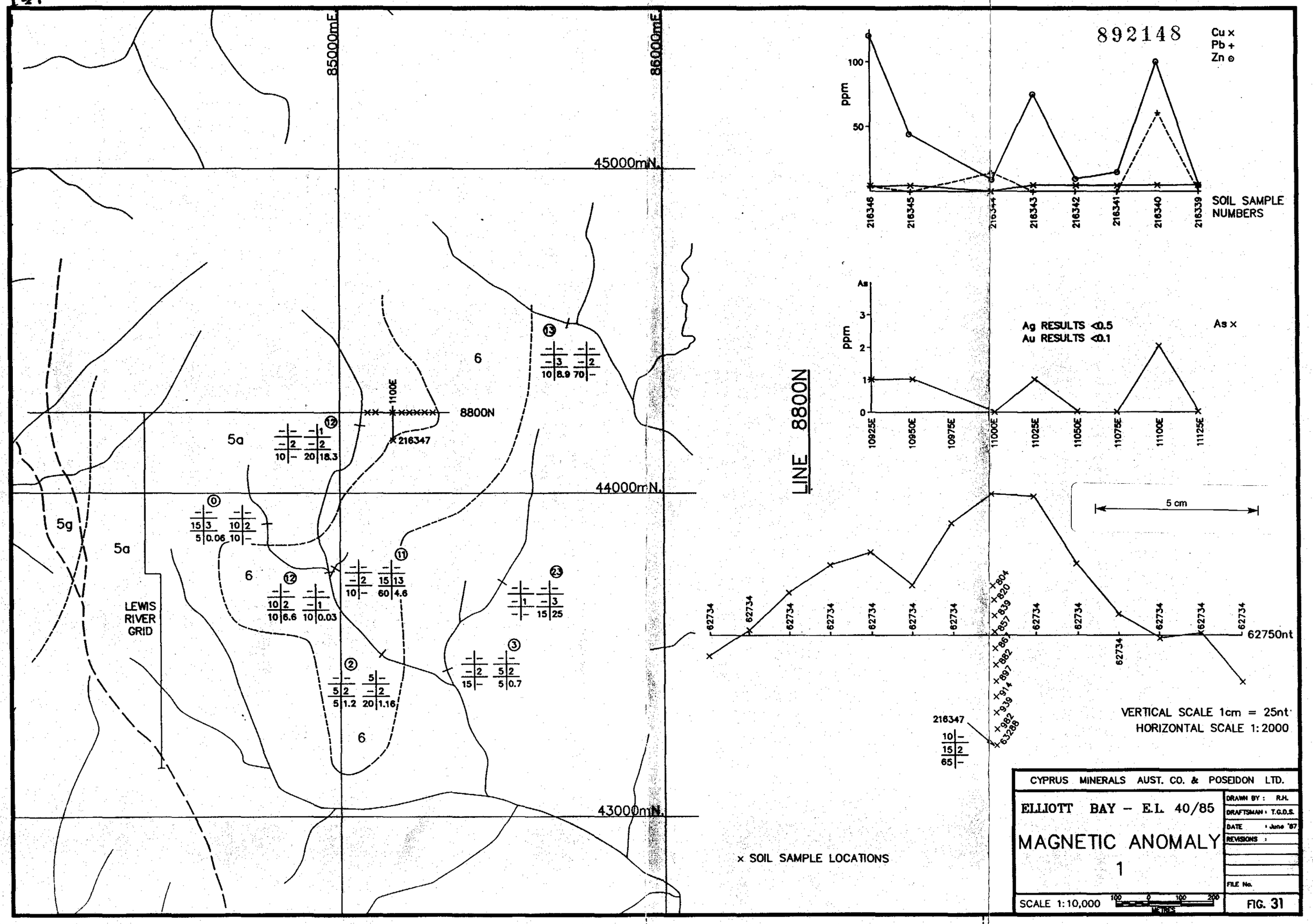
Recommendations

Line cutting and gridding to the south of Line 8800N is recommended in order to obtain better coverage of the anomaly and porphyry contact.

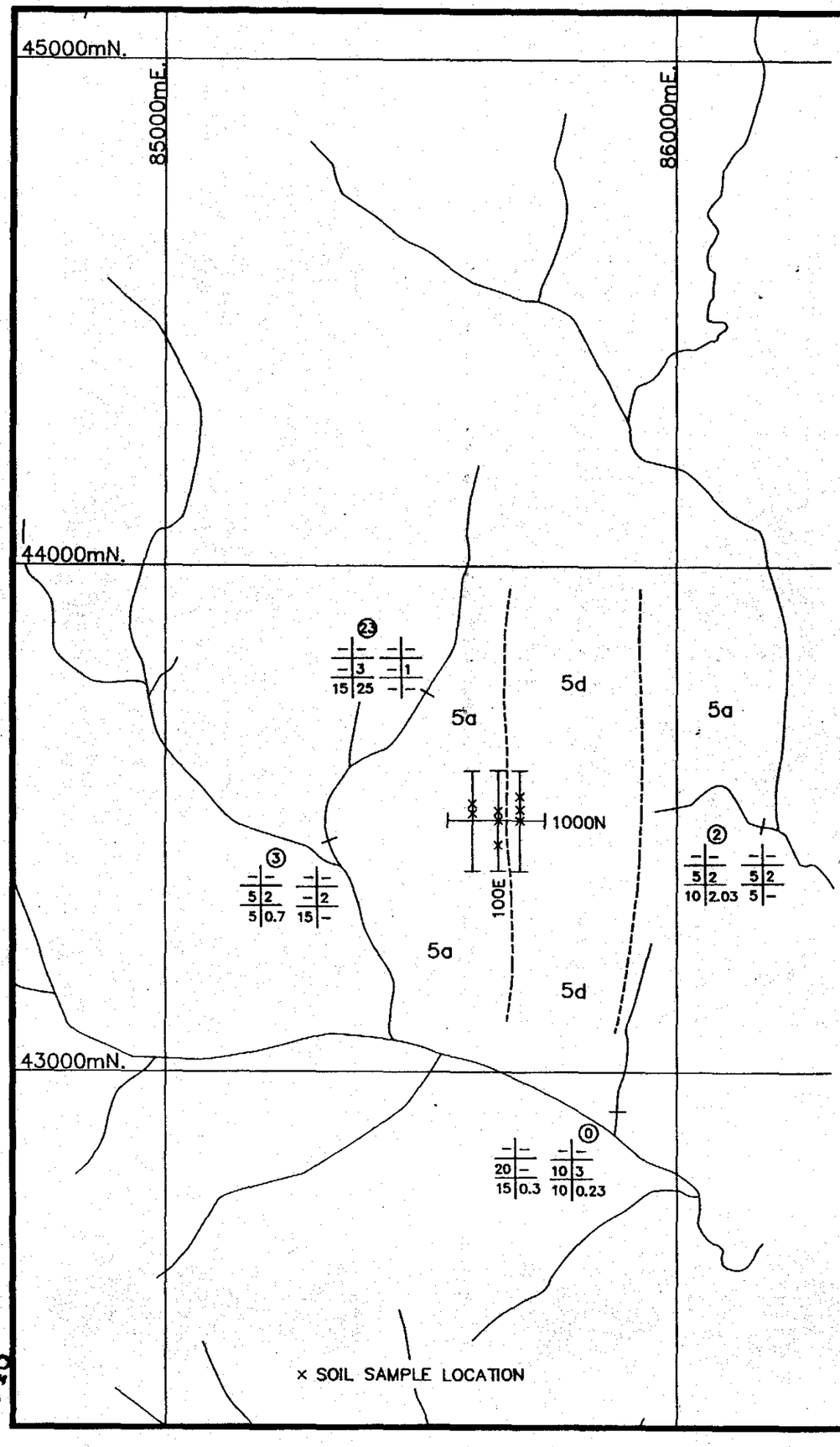
Magnetic Anomaly 2

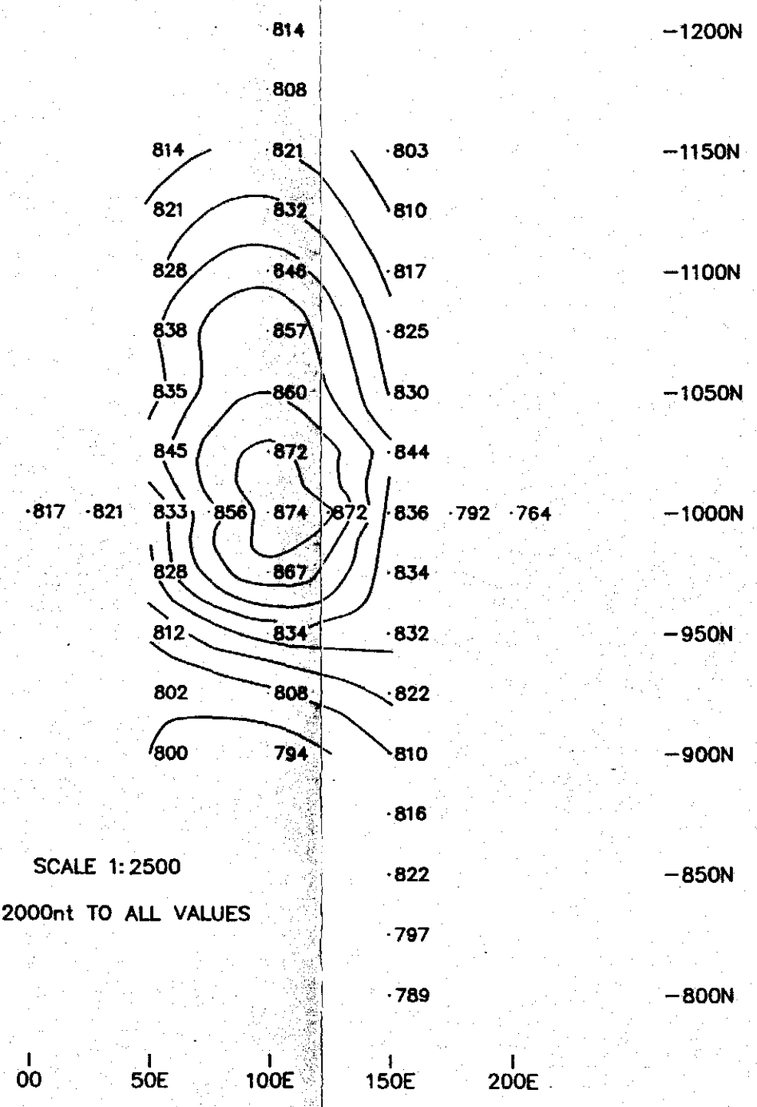
Four traverse lines totalling 1.1 line kilometers were completed over this anomaly accurately locating its center of 200 nT. The anomaly occurs over coarse grained rhyolitic quartz crystal tuffs containing minor quartz veins which are orientated approximately north-south. Soil samples collected over the anomaly center were generally disappointing with only one sample above detection limit in gold (0.06 g/t gold, Figure 32).

The magnetic anomaly has been well located, however the magnetic source appears to be quite deep. There is no surface explanation


892148
85000mE
86000mE
45000mN
44000mN
43000mN
8800N
1100E
216347
5a
5g
6
LEWIS RIVER GRID
LINE 8800N
Cu ×
Pb +
Zn ⊙
ppm
SOIL SAMPLE NUMBERS
216346
216345
216344
216343
216342
216341
216340
216339
As
Ag RESULTS <0.5
Au RESULTS <0.1
As ×
10925E
10950E
10975E
11000E
11025E
11050E
11075E
11100E
11125E
5 cm
62750nt
VERTICAL SCALE 1cm = 25nt
HORIZONTAL SCALE 1:2000
× SOIL SAMPLE LOCATIONS
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.
ELLIOTT BAY – E.L. 40/85
MAGNETIC ANOMALY
1
DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.
SCALE 1:10,000
METRES
FIG. 31

892149





SCALE 1:2500

ADD 62000nt TO ALL VALUES

5 cm

Soil Sample Results

No.	Location	Cu	Pb	Zn	Ag	As	Au
216348	1025N 50E	10	10	25	–	–	–
216349	1050N 50E	10	–	25	–	1	–
216350	1025N 100E	10	–	15	–	–	0.06
216401	950N 100E	5	20	25	–	1	–
216402	1000N 150E	5	5	15	–	1	–
216403	1025N 150E	5	15	20	–	–	–
216404	1050N 150E	5	15	25	–	–	–

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MAGNETIC ANOMALY 2

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DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

SCALE 1:10,000 100 0 100 200 METRES

FIG. 32

for the anomaly.

Recommendations

No further work is warranted due to the depressed soil geochemistry.

Magnetic Anomaly 3

Six traverse lines totalling 2.1 line kilometers were completed and delineated a 150 nT anomaly centered at 350S:225E. This anomaly occurs within granite approximately 100 meters from its contact with rhyolitic tuff. Soil samples were collected along line 350S over the center of the anomaly. Anomalous soil results were obtained at the eastern end of the line (5100 ppm copper, 98 ppm lead, 10 ppm arsenic and 0.03 g/t gold). The source for this appears to be the contact between the granite and rhyolitic tuffs (Figures 33 and 33A).

The magnetic anomaly appears to be deep (>100 meters) and may occur at the granite tuff contact. This would suggest the contact dips to the southwest. Coincident magnetic and soil geochemical anomalies may indicate the presence of mineralization at depth.

Recommendations

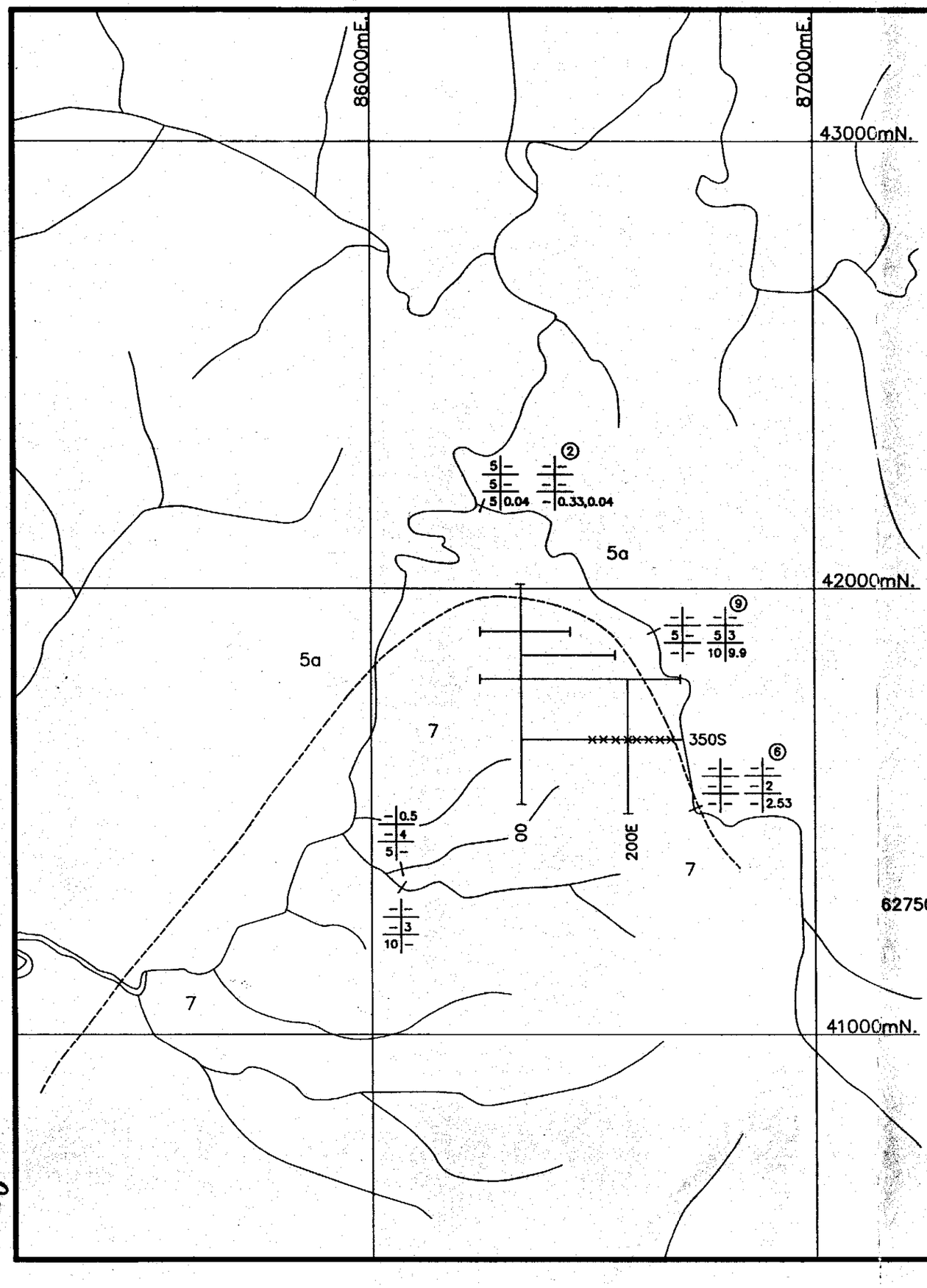
Detailed soil sampling and ground magnetics are required over the anomalous contact zone.

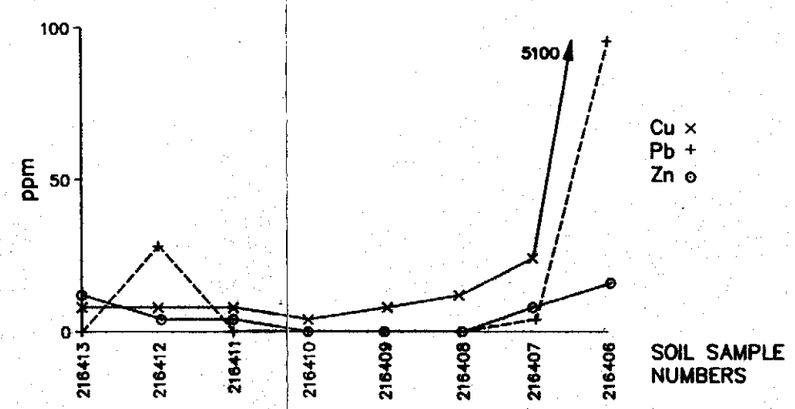
Magnetic Anomaly 4

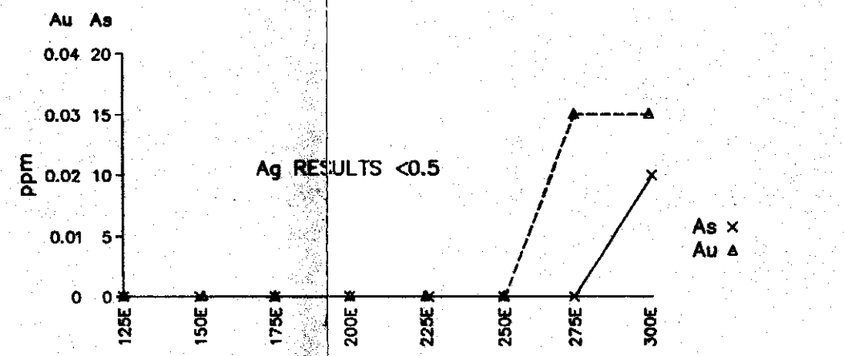
Six traverse lines totalling 1.6 line kilometers were completed. A 350 nT magnetic anomaly was located. This anomaly occurs on the eastern margin of the quartz feldspar biotite porphyry which has been intensely chloritized (Figure 34).

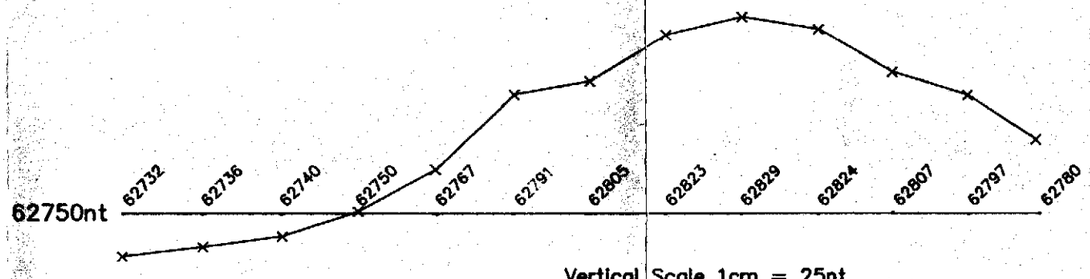
Ten soil samples were taken over the anomaly center. Most samples were highly chloritic, fissile and contained major pale green coarse mica flakes probably after biotite. One sample containing 5% pyrite was anomalous in base metals (2700 ppm copper, 1325 ppm

892151









Vertical Scale 1cm = 25nt
Horizontal Scale 1 : 2000

5 cm

× Soil Sample Locations

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MAGNETIC ANOMALY 3

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DATE : June '87
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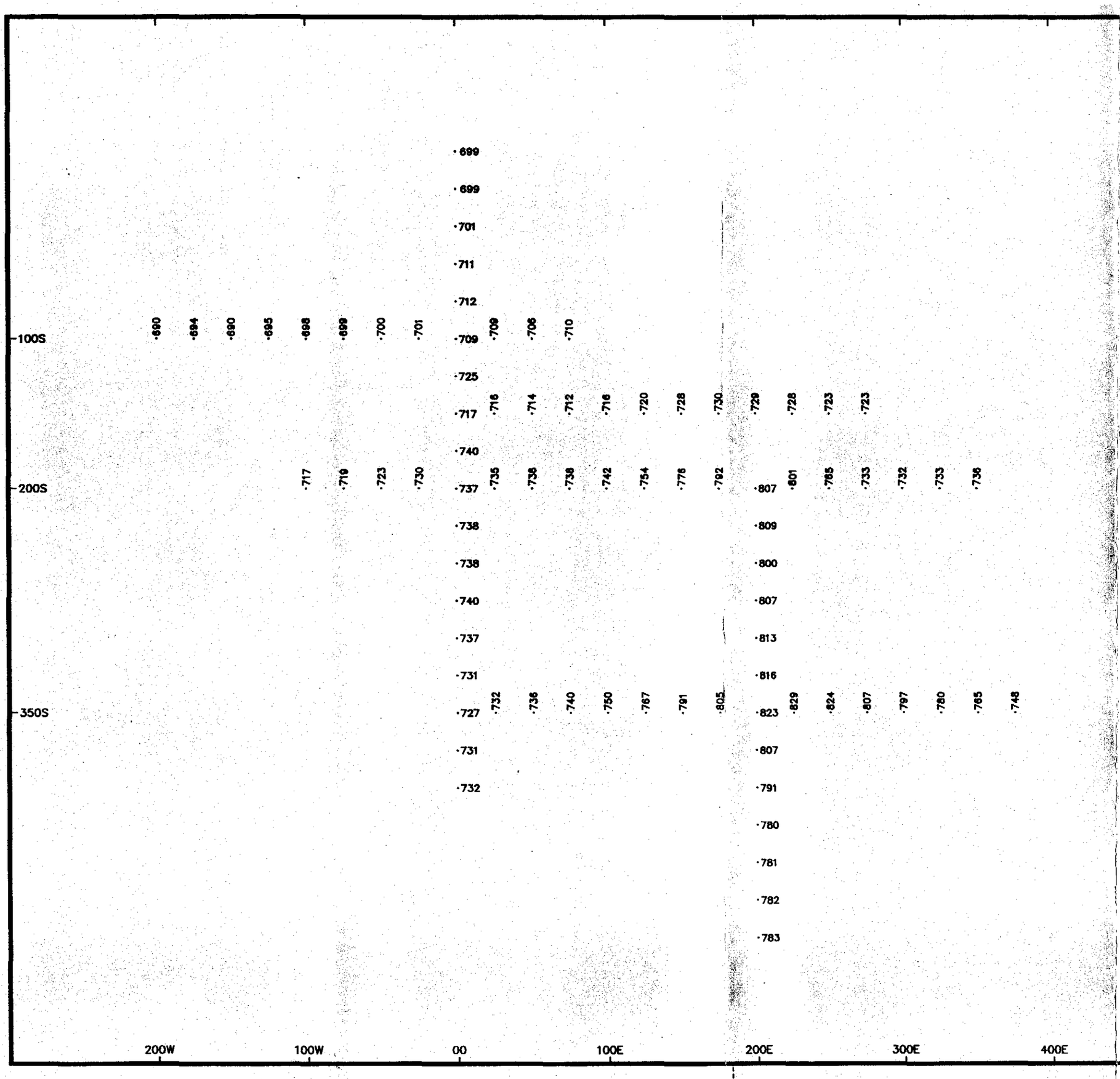
FILE No.

SCALE 1:10,000 100 0 100 200 METRES

FIG. 33

150

892152



NOTE: Add 62000nt to all values

5 cm

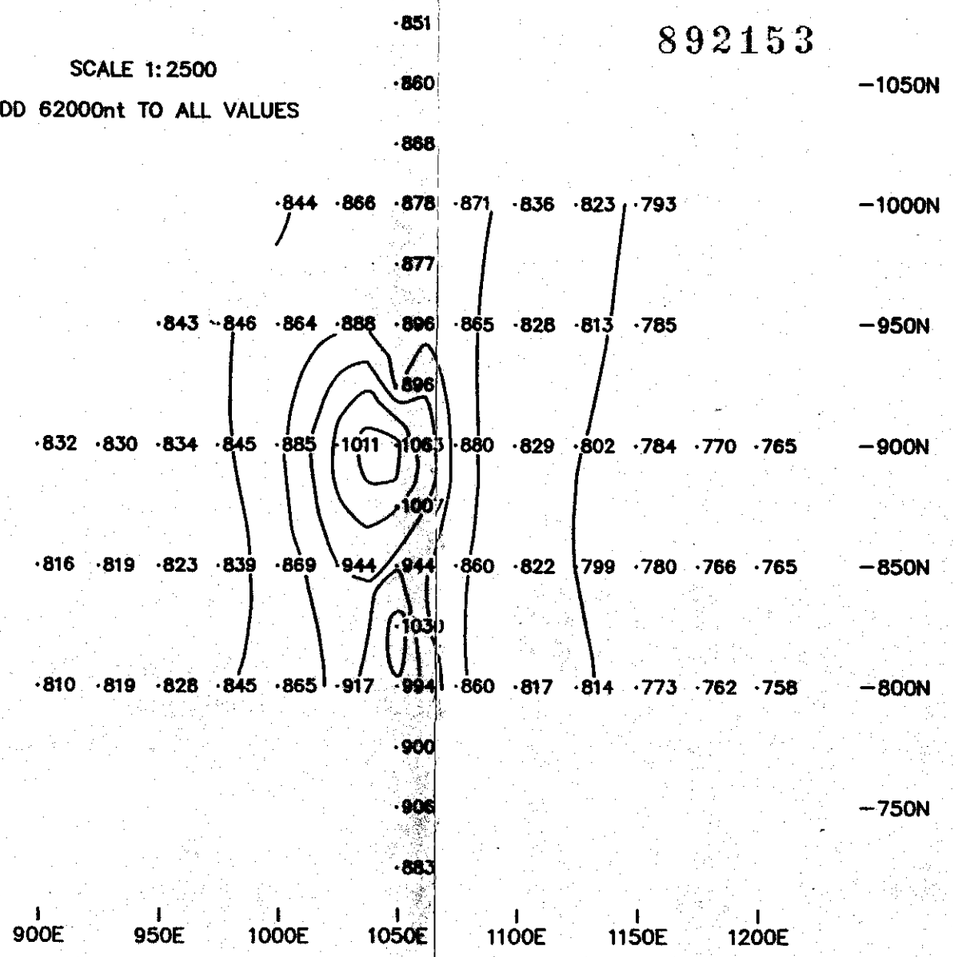
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.	
ELLIOTT BAY – E.L. 40/85 MAGNETIC ANOMOLY 3 MAGNETIC DATA	DRAWN BY : C.T. DRAFTSMAN : T.G.D.S. DATE : June '87 REVISIONS : FILE No.
SCALE 1 : 2500	FIG. 33A

131

892153

SCALE 1:2500

ADD 62000nt TO ALL VALUES



5 cm

Soil Sample Results

No.	Location	Cu	Pb	Zn	Ag	As	Au	Description
216414	950N 1050E	70	140	230	–	1	–	Highly chloritic qtz–feld biotite porphyry
216415	950N 975E	10	–	10	–	–	–	
216416	950N 1075E	5	30	40	–	–	–	
216417	900N 1075E	10	25	45	–	1	–	
216418	900N 1050E	15	15	65	–	–	–	
216419	900N 1025E	25	–	35	–	–	–	
216420	850N 1025E	50	–	45	–	–	–	
216421	850N 1050E	25	–	30	–	–	–	
216422	850N 1075E	10	–	35	–	–	–	
216423	800N 1050E	40	190	230	–	–	–	
216424	800N 1025E	2700	1325	35	–	48	–	+ Pyrite

× SOIL SAMPLE LOCATION

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ELLIOTT BAY – E.L. 40/85

MAGNETIC ANOMALY 4

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DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

SCALE 1:10,000 (100 0 100 200 METRES)

FIG. 34

152

lead, 48 ppm arsenic) but contained no gold.

Recommendations

This anomaly has been well located but the poor soil geochemistry does not warrant further work.

Magnetic Anomaly 5

Previous Work

The area was covered by Geopeko's regional stream geochemistry and mapping.

Introduction

This small magnetic anomaly is located on the west bank of the Hudson River at 5 252 300N:385 300E (Enclosure 23). The anomaly has been located on the ground with one 400 meter long line.

Geology

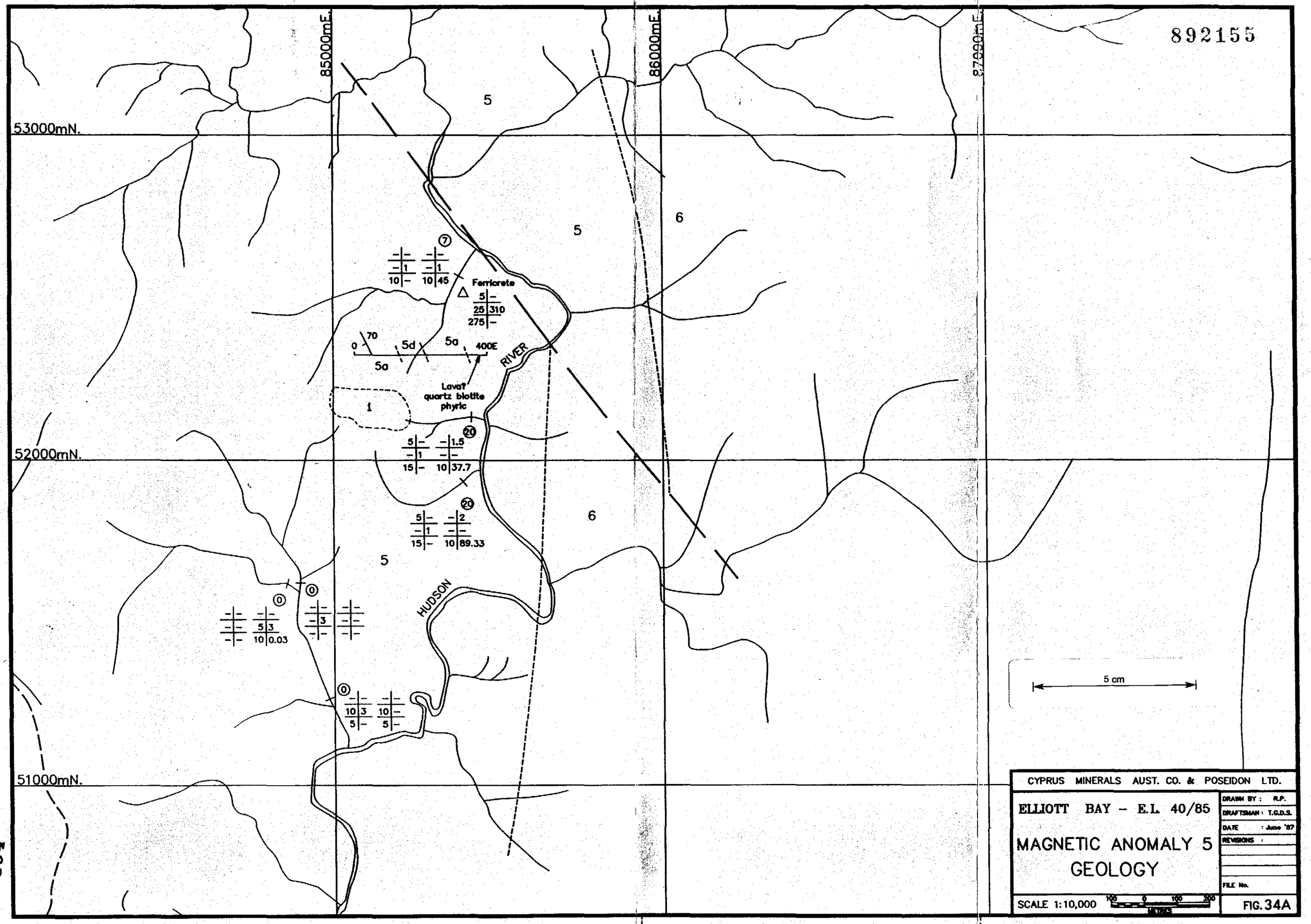
Rhyolitic to dacitic volcanics forming part of the Wart Hill and Hudson River volcanics outcrop along the grid line (Figure 34A). These volcanics include:

- volcaniclastics, fine to medium grained with occasional clasts <150 millimeters, chloritized
- lava-ignimbrites, fine to medium grained, 325 to 400E

The intrusive contact between these volcanics and the Elliott Point Porphyry is located 400 meters to the east. One hundred meters south of the line a remnant of Tertiary gravels is perched on a hill top.

Magnetics

Magnetics were recorded at 10 meter intervals along the line (Enclosure 64) the anomaly peaking at 62808 nT over dacite lavas and ignimbrite at 350E. No magnetic minerals were located.



154

N. W. Computer Aided Drafting Centre (004 354315)

Geochemistry

Minus 80 mesh and pan concentrate stream samples were collected as part of the volcanic/porphyry contact sampling program (Enclosure 64). Base metals were all below 20 ppm and 89.33 ppm gold occurs in a panned concentrate from a stream with Tertiary gravels in its drainage. Soil and rockchip samples were taken at 25 meter intervals along the line unless the quartz lag cover was too thick to penetrate by auger. Copper, lead, zinc values were all less than 50 ppm with the exception of one zinc value of 100 ppm. Gold values were all below 0.01 ppm. A ferricrete deposit located 300 meters downstream from the line assayed 275 zinc and 310 arsenic. The source may be a chloritic volcaniclastic at 100E.

Recommendations

No further work is recommended.

GEOCHEMICAL - GEOLOGICAL ANOMALIES.....

North Porphyry Contact

Previous Work

The area has been covered in detail by Geopeko's regional stream sampling. The Voyager 20 grid is located to the north and Cyprus' Line 6 is the eastward extension of Geopeko's 9200N. During 1985/86 Cyprus lines 7, 8 and 9 partly covered this area. These lines have been extended.

Introduction

The prospect is located in the northeastern part of the tenement straddling the Hudson River/Wanderer River watershed (Enclosure 23). Vegetation in the area is sparse having been burnt during a 1985 bush fire (Plate 11).

Attention was drawn to the area during systematic stream sampling of the western intrusive contact of the Elliott Point Porphyry. Anomalous gold grain counts with pyrite in pan concentrates were

892157



PLATE 11 North Porphyry Contact. View north-northeast along the contact zone.

- Stream flows along major lineament associated with chlorite pyrite alteration
- White outcrops to west of creek are quartz veining seritic alteration

located at several sites in tributaries of the Hudson River. Outcrops of quartz veined, chloritic/sericitic pyritic volcanics were found while prospecting the area. In addition a magnetic anomaly occurs within the porphyry close to the contact with volcanics.

Gridding

A total of 3.9 kilometers of lines were cut, some of these being re-established old Cyprus lines. All lines are cut true east-west with the exception of Lines 8 and 9 which are magnetic east-west. The grid was designed to cover the pyritic alteration zone in volcanics on the porphyry contact and the magnetic anomaly within the porphyry.

Geology

The porphyry volcanic contact strikes north-northeast and is part of a regional lineament (Figure 35 and Enclosure 1). Porphyries are medium-coarse grained. A small exposure of microgranite is located south of Line 7 at 171446. The porphyry is locally chloritized in proximity to joints. Volcanics are part of the Wart Hill/Hudson River volcanics. The dominant lithology is a fine-medium grained quartz eye volcaniclastic.

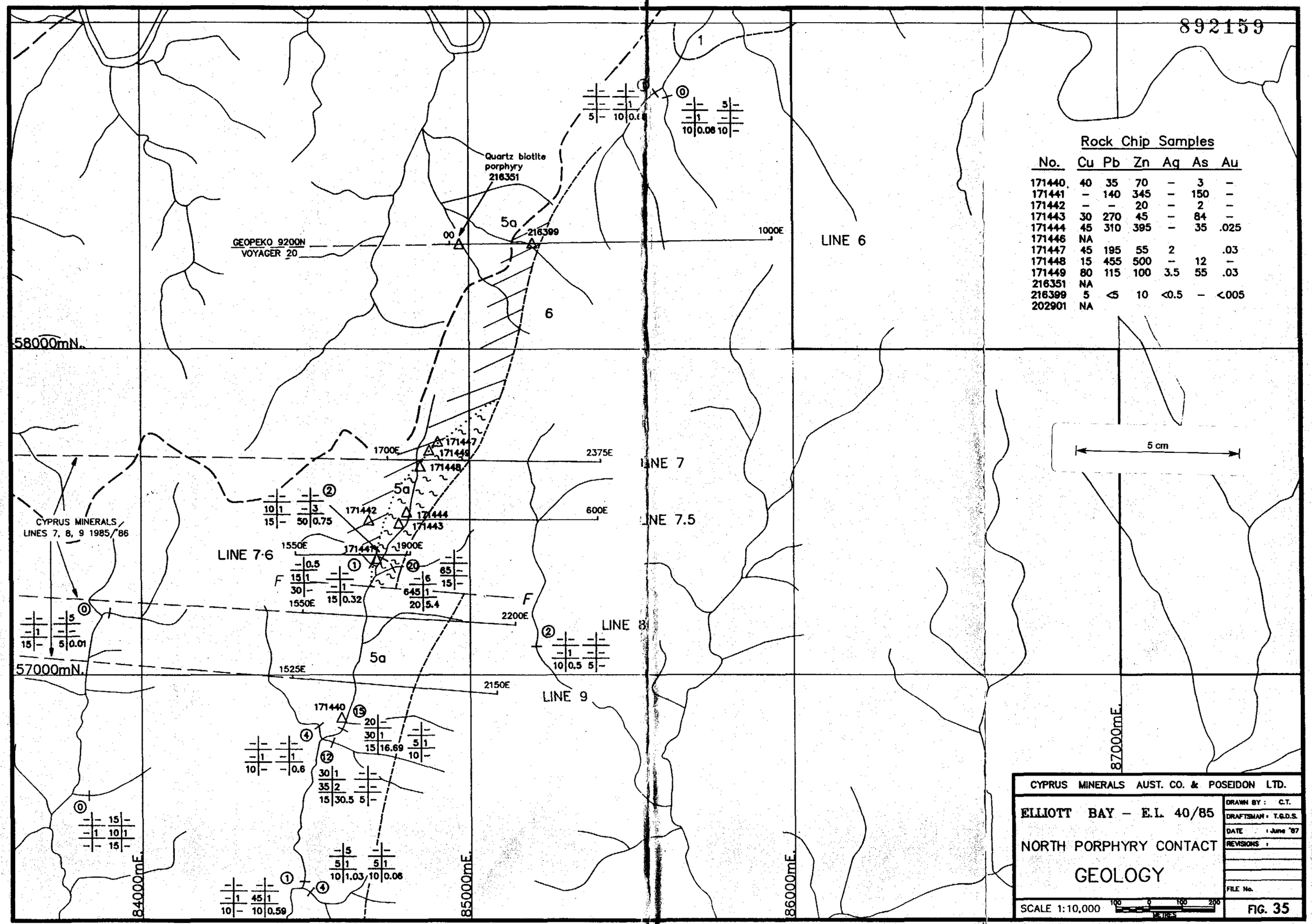
Two styles of alteration in the volcanics are associated with the porphyry:

- chlorite sericite pyrite, a zone 100 by 500 meters between Lines 7 and 8

- quartz veining with associated sericitic wall rock alteration which extends from the prospect south to the North Lewis area

Intense alteration of the former type is restricted to a 10 to 20 meter wide zone on the contact between Lines 7 and 7.6. Up to 20% pyrite is associated with chloritized volcanics with minor galena as disseminations and in quartz chlorite veins. All rockchips from this zone assay <0.03 ppm gold.

892159



Rock Chip Samples

No.	Cu	Pb	Zn	Ag	As	Au
171440	40	35	70	–	3	–
171441	–	140	345	–	150	–
171442	–	–	20	–	2	–
171443	30	270	45	–	84	–
171444	45	310	395	–	35	.025
171446	NA					
171447	45	195	55	2		.03
171448	15	455	500	–	12	–
171449	80	115	100	3.5	55	.03
216351	NA					
216399	5	<5	10	<0.5	–	<.005
202901	NA					

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ELLIOTT BAY – E.L. 40/85

NORTH PORPHYRY CONTACT

GEOLOGY

DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

SCALE 1:10,000 100 0 100 200 METRES

FIG. 35

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Stream Geochemistry

Stream values were barely anomalous. Maximum gold grain counts in pan concentrates of 20 and 12 colors assayed 5.4 and 30.5 ppm respectively. Minus 80 mesh gold was below detection except 0.06 ppm 1 kilometer south of the grid. Base metal values were also low with exception of 645 ppm lead in pan concentrate associated with the 20 gold grains and -80 mesh maximum values of 65 ppm lead and 30 ppm zinc. All copper and arsenic were below detection limits.

Soil Geochemistry

B/C-horizon samples in residual soils were augered at 25 meter intervals along lines reducing to 12.5 meters through zones of most intense alteration. All soil gold values were less than 0.01 ppm. Best base metal values were 170 ppm lead, 990 ppm zinc, 13 silver, 17 ppm arsenic on Line 7.6 between 1825E and 1875E (Enclosures 65 to 69).

Rock Geochemistry

Nine rockchips were selected from most altered and mineralized material (Figure 35). Only three of these assayed above detection limit for gold (0.025 to 0.03 ppm). Highest base metal values (sample 171448) were 455 ppm lead and 500 ppm zinc. Descriptions and assays are listed below. Samples from the quartz veining and sericitic wall rock alteration all assayed at or below detection limit for all elements.

TABLE 10 NORTH PORPHYRY CONTACT - ROCK SAMPLES

Sample	Cu	Pb	Zn	Ag	As	Au	Description
171440	40	35	70	-	3	-	Quartz phyric rhyolitic volcaniclastic, chloritized minor pyrite
171441	-	140	345	-	159	-	Gossan/ferricrete in stream bed at 202604/648
171442	-	-	20	-	2	-	Quartz veining with sericitized volcanics

Sample	Cu	Pb	Zn	Ag	As	Au	Description
171443	30	270	45	-	84	-	Limonitic volcanic with quartz veining
171444	45	310	395	-	35	0.025	Chloritized quartz phyric volcaniclastic with <20% pyrite, 5m north of 171443
171446	not analyzed						Microgranite with quartz chlorite veining
171447	45	195	55	2	-	0.03	Gossan and chloritized volcaniclastic
171448	15	455	500	-	12	-	Intensely sericitized volcaniclastic with <20% pyrite and minor galena
171449	80	115	100	3.5	55	0.03	Gossan and quartz chlorite veining
216351	not analyzed						Quartz feldspar biotite porphyry
216399	5	<5	10	-	-	-	Quartz veining within sericitized volcanics
202901	not analyzed						Foliated medium grained quartz phyric rhyolitic volcaniclastic

Geophysics

MAXMIN and magnetics were read along all lines (Enclosures 65 to 69). No definite EM responses were recorded. A very weak response may be associated with the porphyry contact. Magnetic anomalies of 100 to 200 nT have been located in the porphyry on all lines with the strongest anomaly being on Line 6. This magnetic feature is coincident with joint controlled chloritic alteration not anomalous in soils.

Conclusions and Recommendations

The pyrite chlorite alteration zone adjacent to the porphyry contact has been adequately tested for precious and base metal potential. Magnetic anomalies within the porphyry have been located and soil sampled without significant geochemical results. The area does not warrant further investigation.

Lewis River Prospect

Previous Work

This area was discovered by Geopeko (Voyager 10) during follow-up of anomalous lead and zinc stream geochemistry. The area was gridded and soil sampled (200 meter spaced lines - analyses for copper, lead and zinc only) and selected lines of magnetics and SP were surveyed. A continuous lead-zinc soil anomaly was discovered in the center of the grid. Peak values of 3900 ppm lead and 1900 ppm zinc were recorded but no significant geophysical anomalies were associated with soil anomalies.

No further work was undertaken on the prospect although soil lines extending down to Voyager 3 were recommended to cover the sediment/rhyolitic tuff contact. Further to the north the old Lewis River workings (Geopeko's Voyager 2) occur.

1986/87 Field Season Work

This area was re-investigated due to very high stream sediment gold values mostly in panned concentrates but also in -80 mesh samples. Part of the original Voyager 10 grid was enlarged to the south and west to include the entire anomalous drainage area. A grid totalling 6.9 line kilometers was established. C-horizon soil sampling, geological mapping and ground magnetics surveys were completed.

Geology

The gridded area comprises to two main units. These are tuffaceous sediments including siltstones, mudstones and arenaceous sandstones and rhyolitic quartz crystal tuffs. The contact between the two appears to be conformable but is faulted off to the south (Enclosures 2 and 70).

The major features of this area are two faults. One trends northwest within the southeastern part of the grid and lies parallel to one branch of the anomalous drainage. The other trends northeast and displaces the sediment tuff contact to the southeast. The northwest trending fault has produced very high

shearing and chlorite-talc-pyrite alteration up to 100 meters from its inferred trace. The northeast trending fault has not produced significant shearing but localized highly chloritized zones occur along the inferred trace.

Major quartz veins at the headwaters of the two drainages appear to also define strong north-south trending faults which probably lie parallel to schistosity.

Stream Geochemistry

Stream sediment samples collected from within the area returned up to 10 ppm copper, 15 ppm lead, 20 ppm zinc, 1 ppm arsenic and 0.8 ppm gold in -80 mesh samples (Enclosure 71). Coarse gold was recognized in pan concentrated samples in all drainages. Anomalous gold grain counts ranging from 6 to 46 and values of up to 95 g/t gold were recorded. Copper, lead, zinc, silver and arsenic values were not considered anomalous in panned concentrates. There appears to be two separate populations of gold values in the separate drainages. The southeastern area contains gold in both -80 mesh and panned concentrates as well as anomalous base metals and arsenic. The northwestern drainage however is dominated by gold in panned concentrates and very little response from other elements.

Rock Geochemistry

Values range from <5 to 610 ppm copper, <5 to 500 ppm lead, 10 to 610 ppm zinc, <0.5 to 2.5 ppm silver, <0.008 to 0.64 ppm gold and <1 ppm to 5.55% arsenic. Anomalous arsenic is associated with anomalous gold in small gossans in the northwestern part of the grid (sample 202429). Small pits in the sample area contain anomalous copper, lead, zinc, arsenic and silver. Samples containing chlorite-talc-pyrite alteration are generally elevated in lead and zinc and are probably the source of Geopeko and Cyprus soil anomalies. (Sample locations and results are shown on Enclosure 71 and descriptions included in Appendix 7A).

Soil Geochemistry

A total of 229 C-horizon soil samples were collected. Sample

locations are presented as Enclosure 72. Results and contours are presented as Enclosures 73 to 78. Peak values are as follows: 625 ppm copper, 585 ppm lead, 4350 ppm zinc, 2 ppm silver, 83 ppm arsenic and 0.71 ppm gold. Anomalous copper occurs as a spot high close to a zone of chloritic alteration in the northwestern part of the grid. Zones of weak lead, zinc and arsenic anomalism appear to be related to the northwest-southeast trending fault; patches of chlorite alteration and associated quartz veins. A spot zinc high of 4350 ppm on the eastern end of Line 8500N remains unexplained. Arsenic anomalism in the northwestern part of the grid is also reflected in anomalous rockchip samples and appears to start abruptly on the northern side of the northeast trending fault between tuffs and sediments.

Gold was assayed by both AAS and fire assay methods. Results are presented as Enclosure 78. In many samples results are not reproducible. It is difficult to ascertain what is in fact anomalous. Here it is considered than any value above detection is anomalous (cf North Lewis data). If this is the case then there is such a spread in values that no discernible pattern is recognized.

Geophysics

Ground magnetics displays very little relief over the bulk of the area. Only one major trend can be discerned. This is a north-northwest trending anomaly with its center at 8100N:10280E and may be associated with a north-south trending fault, however it is not coincident with any soil anomalies.

Conclusions and Recommendations

The source of gold anomalism in creeks has as yet not been located and it appears soil geochemistry is an ineffective method. Stream sediment results suggest although the southeastern area has gold associated with base metals and therefore probably sulfides, the northern area is not associated with base metals and possibly the gold may have a source within the numerous quartz veins.

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More detailed stream sediment sampling designed to find the entry point of the gold into the anomalous streams is recommended. Break of slope soil sampling program is also recommended.

Waterloo Creek

Previous Work

The work area lies within the southwest corner of the Geopeko Voyager 16 grid. The Voyager 16 area was originally investigated because of coincident lead-zinc drainage geochemistry and an air magnetic anomaly. Geological mapping, soil sampling, magnetics and VLF-EM were completed over four lines spaced 400 meters apart. The soil geochemistry outlined an area of lead-zinc soil anomalism in the southwest corner of the grid. Little or no coincidence was found between soil geochemistry and magnetics.

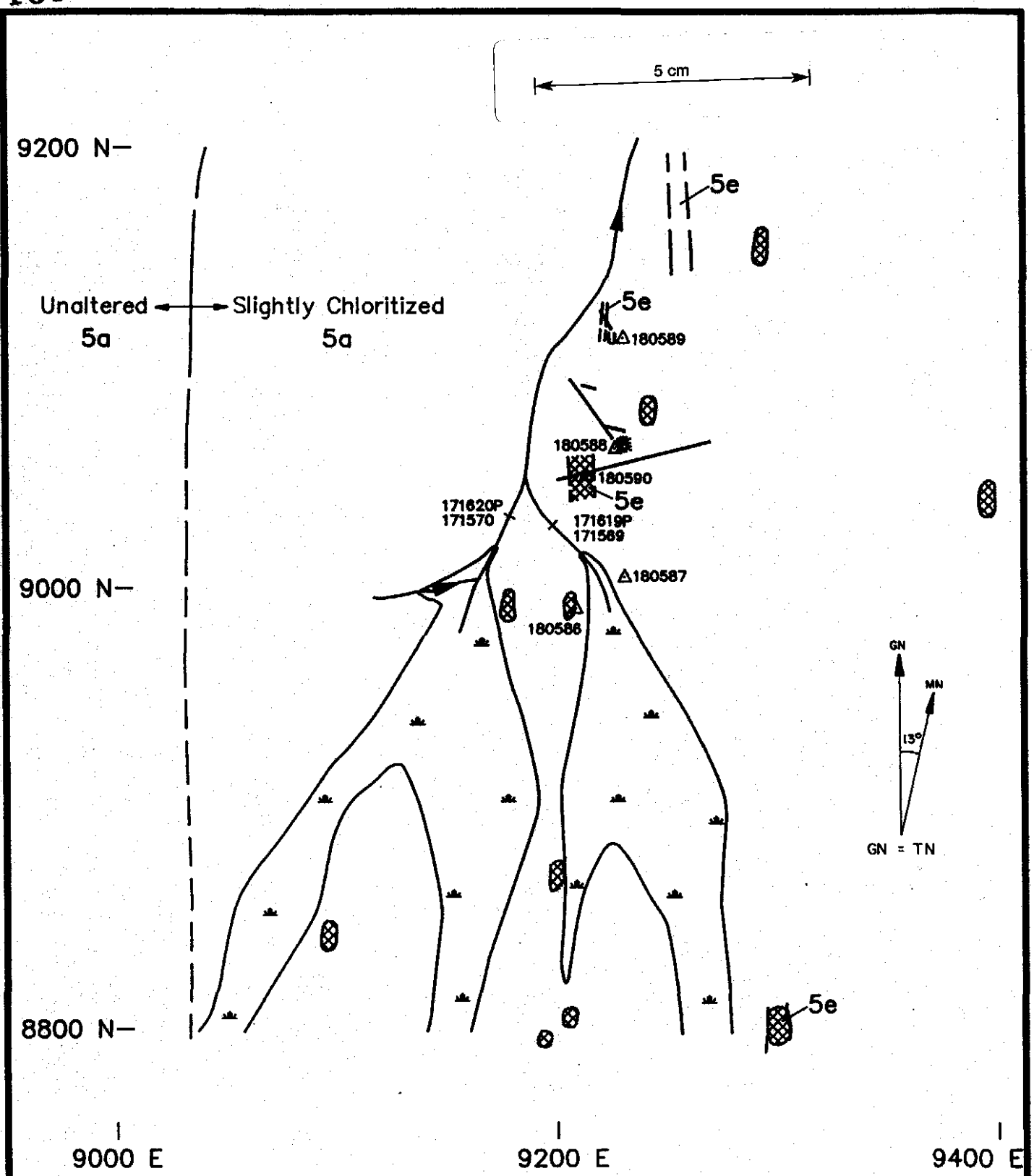
No further work was completed. It was recommended costeans be excavated over the soil anomalies.

1986/87 Field Season Work

Work was instigated on the prospect when the old workings not previously located by Geopeko but reported by BHP were located by helicopter. Reconnaissance rockchips and stream sediment samples were collected. Subsequently 1.7 line kilometers of gridding was completed from the area of lead-zinc anomalism (located by Geopeko) to the old workings immediately to the north.

Geology

The gridded area consists of fine to medium grained rhyolitic quartz crystal tuffs which are all moderately to slightly chloritic with rare highly chloritic zones (Figure 36). Also very minor siltstone or shales occur as thin discontinuous beds up to one meter wide. The old workings consist of one 10 meter deep shaft and two small pits surrounded by numerous shallow costeans. The workings appear to be following major quartz veins with strong chloritic and sericitic alteration halos. It is not known exactly what was being mined but it is assumed prospectors were investigating the source of alluvial gold in streams.



LEGEND

171619P / 171569 — Panned Concentrate −80#

△ Rock Chip

Swamp

Chloritic Alteration

Mine Shaft

Costean

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WATERLOO CREEK

GEOLOGY

&

ROCK CHIP LOCATIONS

SCALE 1 : 2500 (30 0 40 80 METRES)

DRAWN BY : R.H.

DRAFTSMAN: T.G.D.S.

DATE :May '87

REVISIONS :

FILE NO.

FIG. 36

Soil Geochemistry

A total of 56 C-horizon soil samples were collected at 25 meter intervals on four lines. Anomalous values of lead-zinc obtained by Geopeko on Line 8800N were not repeated at the same order of magnitude but significant values of copper (125 ppm), lead (430 ppm) and zinc (515 ppm) were obtained (Figures 37 to 42). Weak, broadly coincident copper, lead, zinc anomalies occur over the old workings. Gold results were very disappointing with only two results above detection limit (0.07, 0.08) and these occurred on the western limits of two lines near the contact with un-chloritized rhyolitic tuffs.

Rock Geochemistry

Five rockchip samples were collected from the area of old workings. Peak values are as follows: 30 ppm copper, 235 ppm zinc and 0.07 g/t gold. Lead, arsenic and silver were all below detection (Figure 43).

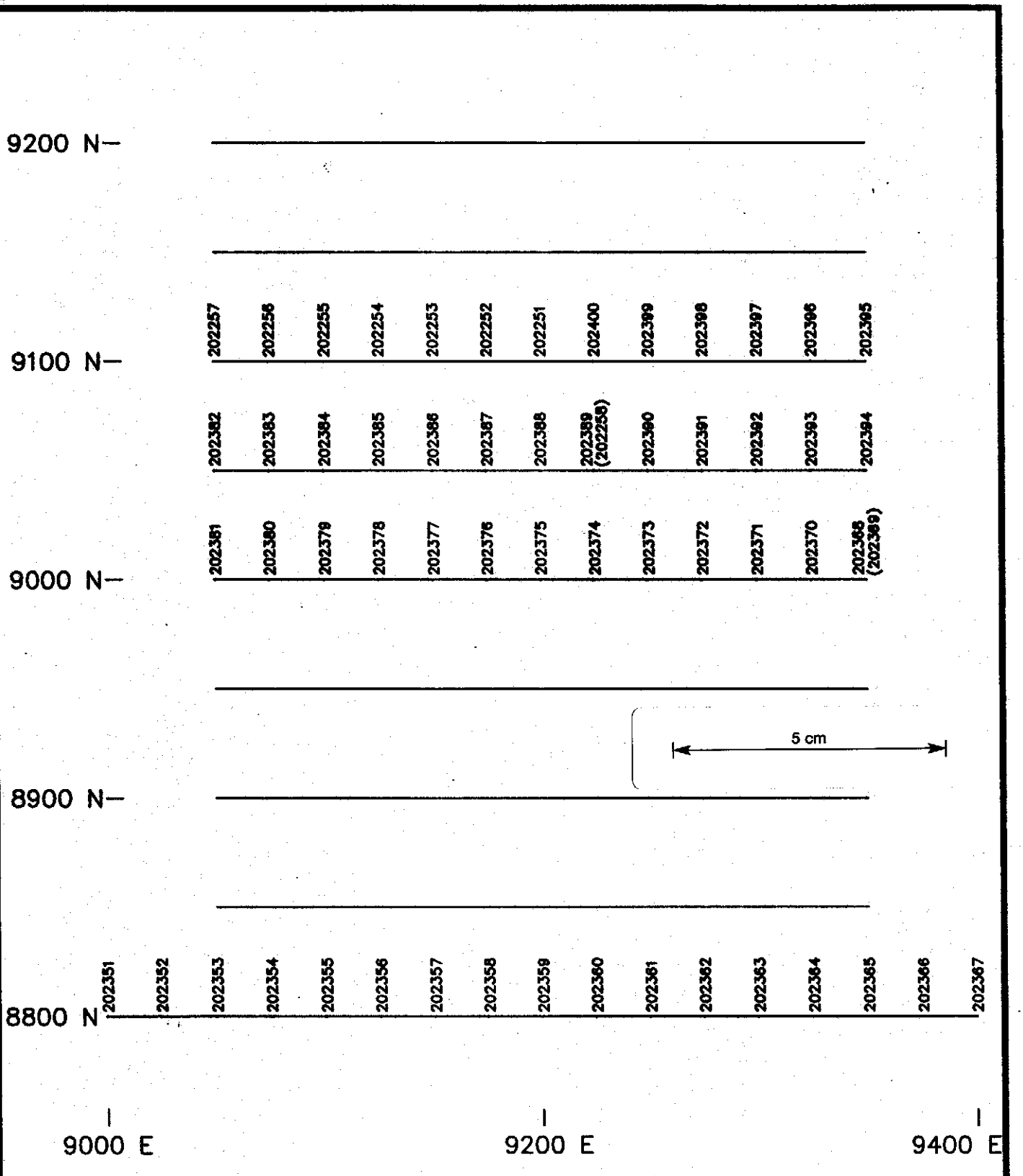
Stream Geochemistry

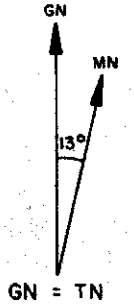
The results for gold in both -80 mesh and panned concentrate samples were encouraging with peak values of 1.97 and 22.7 g/t gold respectively. However these results occur upstream from the old workings. The low values of base metals and arsenic indicate a gold source probably not associated with sulfide mineralization and a source closer towards line 8800N than to the workings (Figure 43).

Conclusions and Recommendations

The lead-zinc soil anomalies on Line 8800N are still unexplained and do not appear to be related to the old workings. Stream geochemistry indicates a gold source towards Line 8800N. Detailed soil sampling closer to line 8800N and costeaning is recommended. The area of the old workings has been sufficiently explored and does not warrant any further work.

892168





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ELLIOTT BAY – E.L. 40/85

WATERLOO CREEK

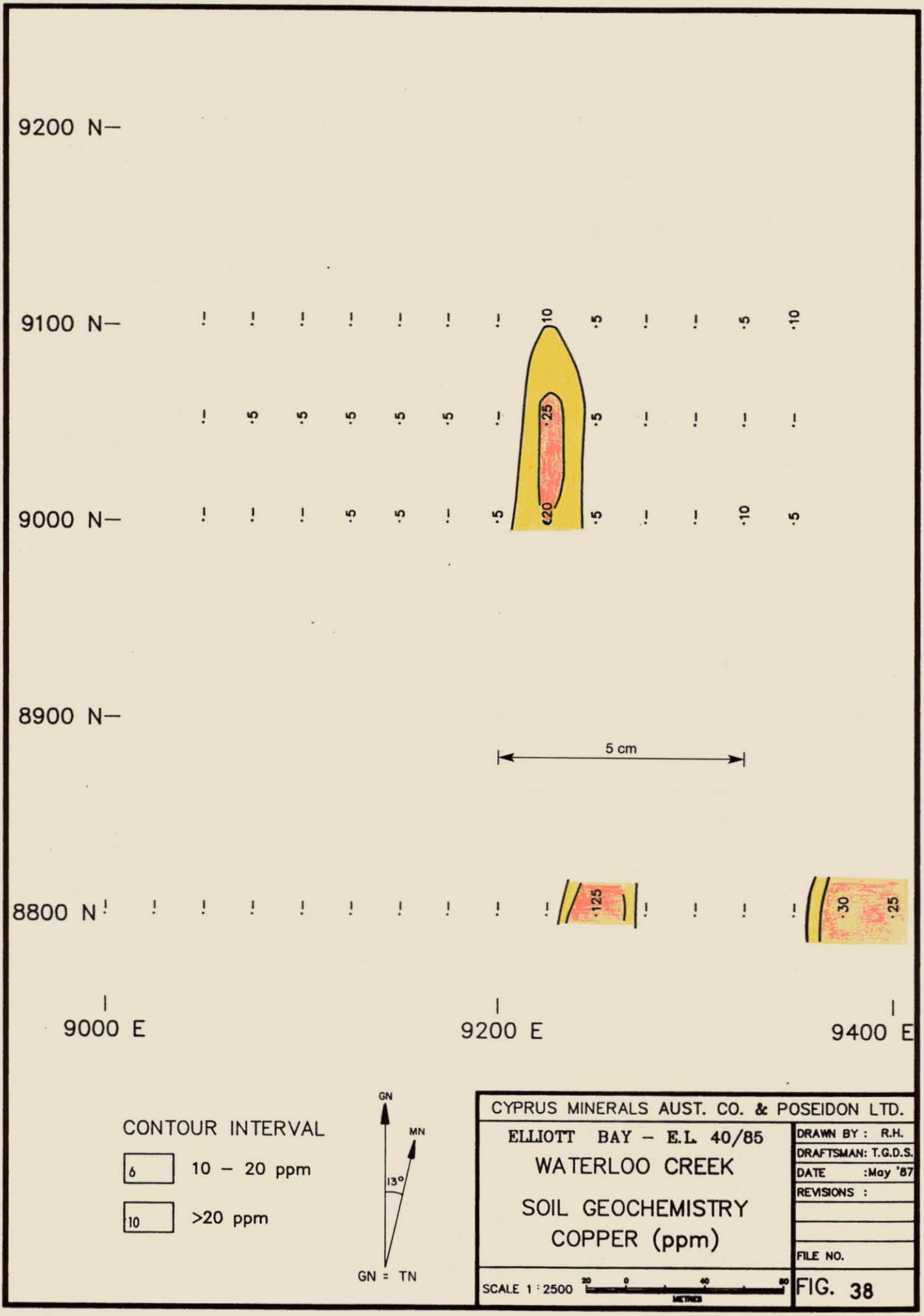
SOIL SAMPLE LOCATIONS

DRAWN BY : R.H.
DRAFTSMAN: T.G.D.S.
DATE : May '87
REVISIONS :
FILE NO.

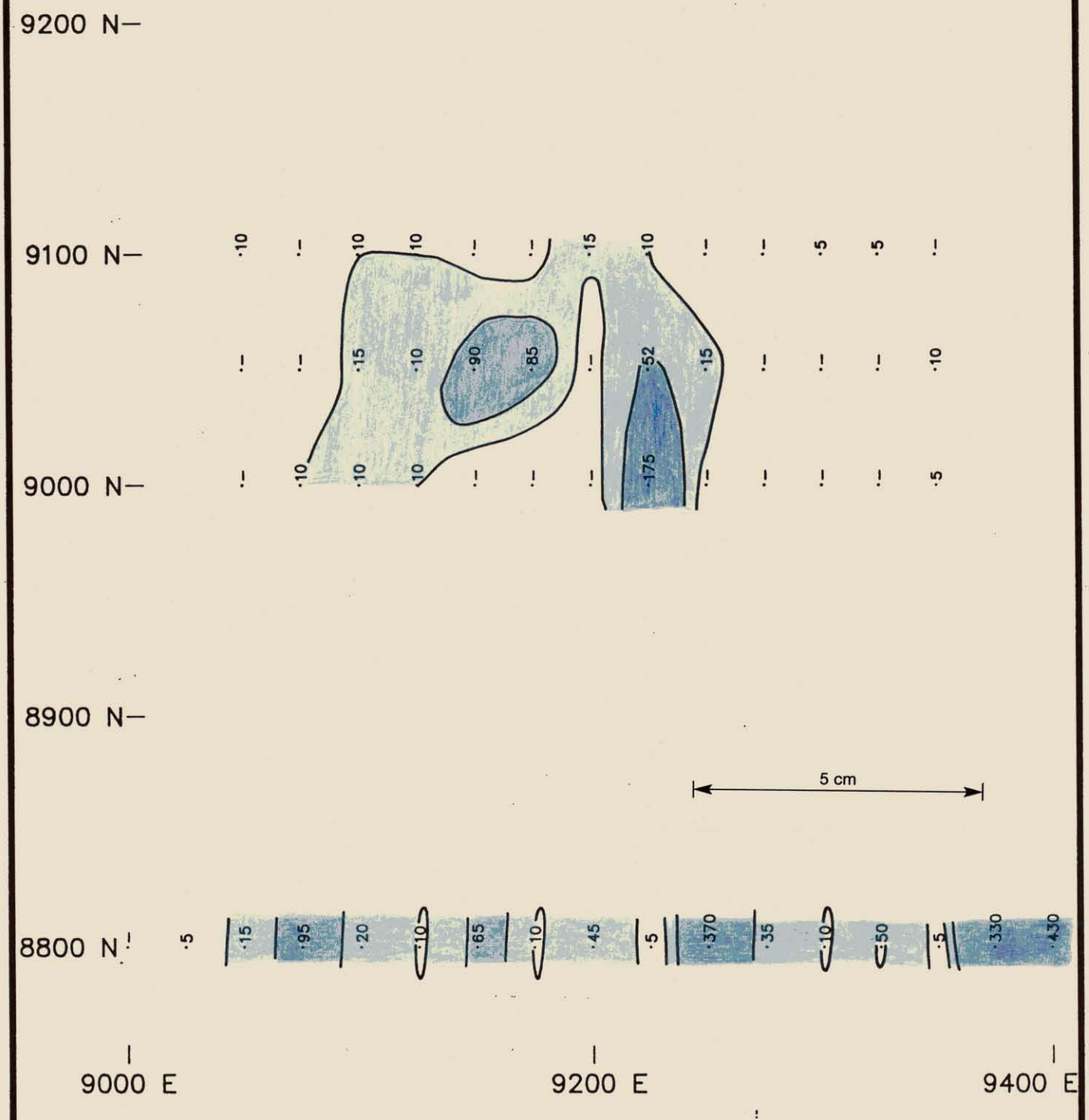
SCALE 1 : 2500

FIG. 37

892169


9200 N
9100 N
9000 N
8900 N
8800 N
5 cm
9000 E
9200 E
9400 E
CONTOUR INTERVAL
6 10 – 20 ppm
10 >20 ppm
GN
MN
13°
GN = TN
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.
ELLIOTT BAY – E.L. 40/85
WATERLOO CREEK
SOIL GEOCHEMISTRY
COPPER (ppm)
DRAWN BY : R.H.
DRAFTSMAN: T.G.D.S.
DATE :May '87
REVISIONS :
FILE NO.
SCALE 1 : 2500
METRES
FIG. 38

892170



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ELLIOTT BAY – E.L. 40/85

WATERLOO CREEK

SOIL GEOCHEMISTRY

LEAD (ppm)

DRAWN BY : R.H.

DRAFTSMAN: T.G.D.S.

DATE :May '87

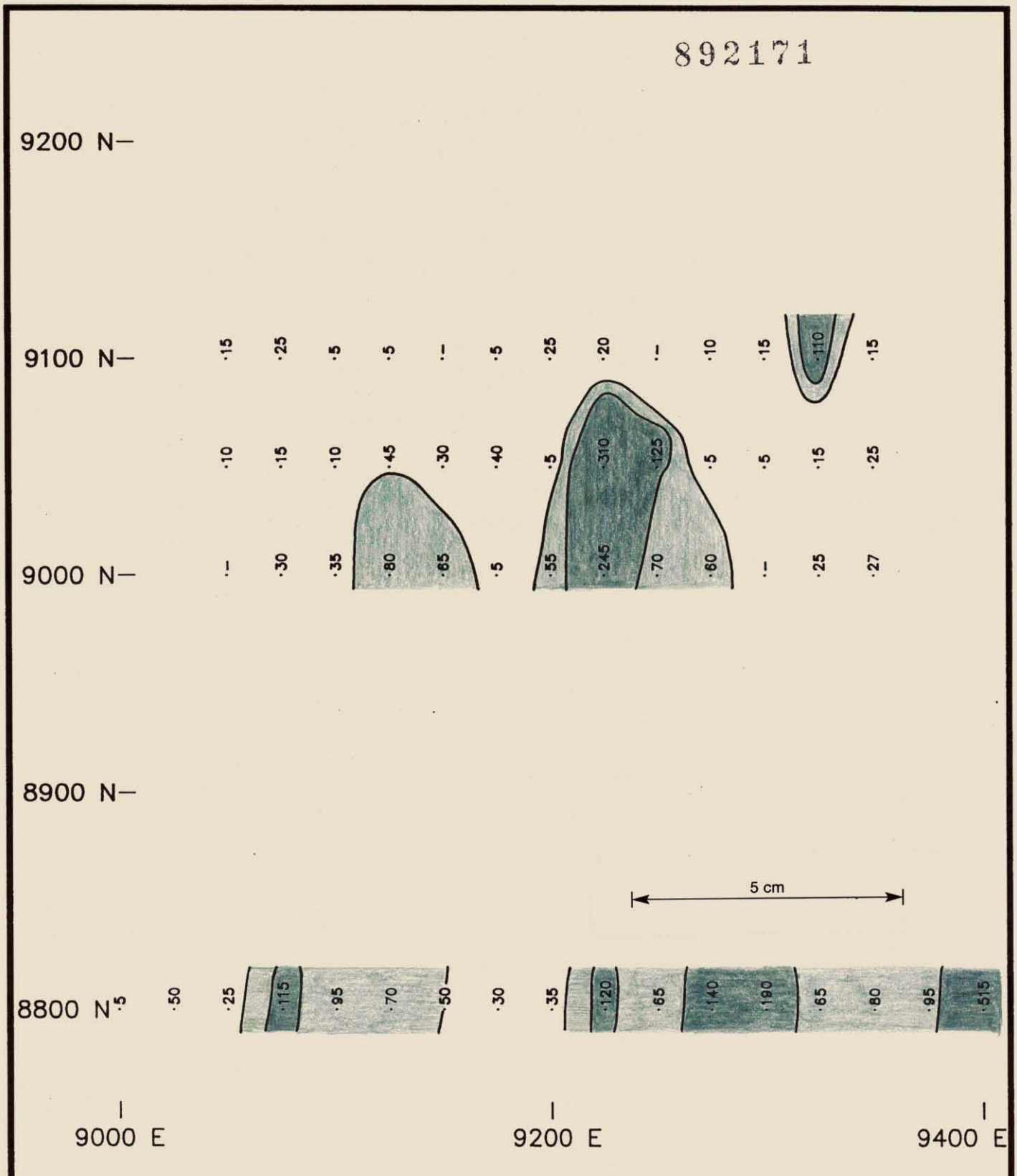
REVISIONS :

FILE NO.

SCALE 1 : 2500 (20 0 40 80 METRES)

FIG. 39

892171



CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WATERLOO CREEK

SOIL GEOCHEMISTRY

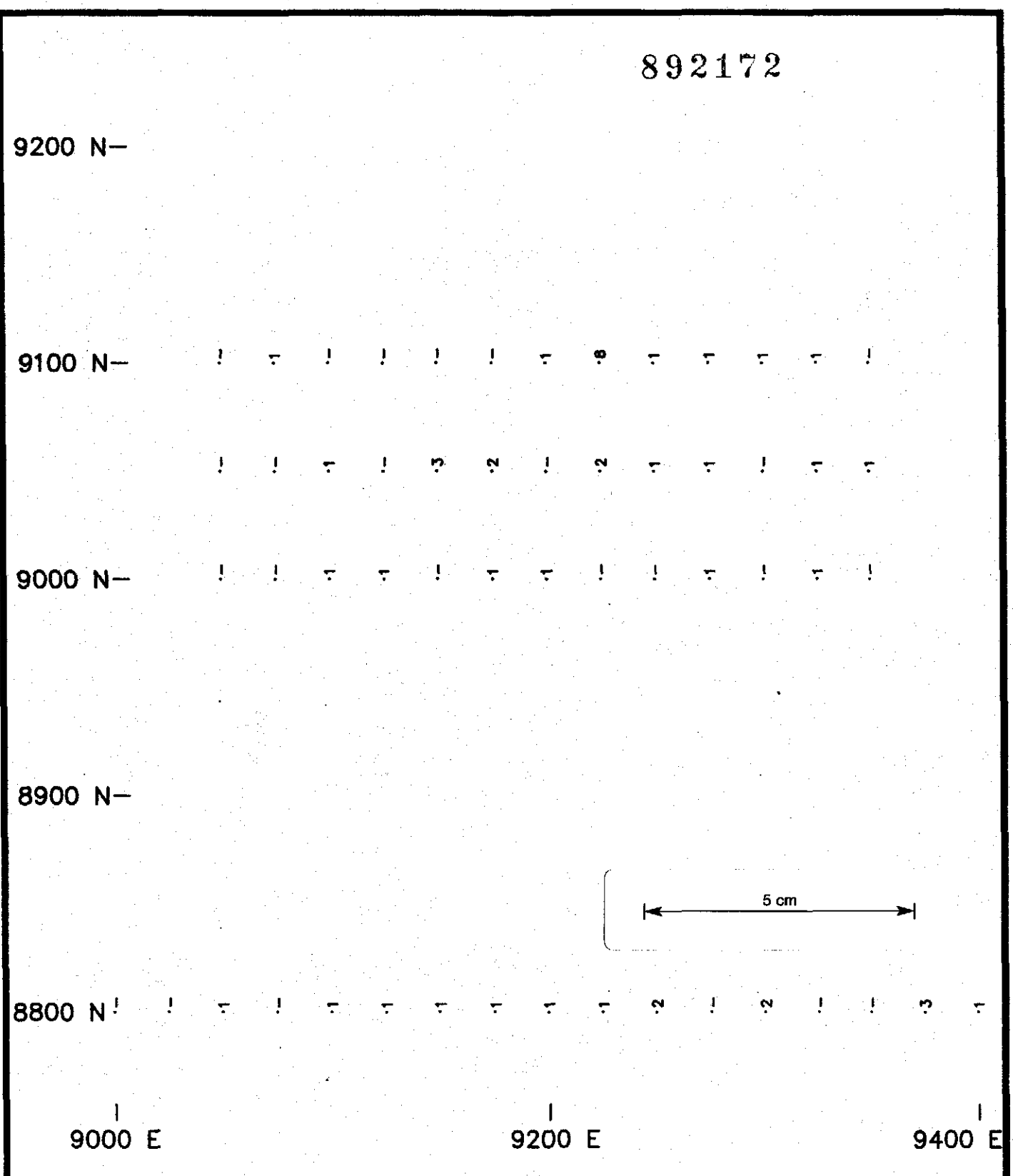
ZINC (ppm)

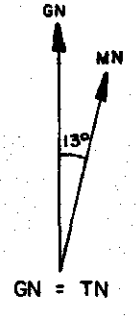
DRAWN BY : R.H.
DRAFTSMAN: T.G.D.S.
DATE : May '87
REVISIONS :
FILE NO.

SCALE 1 : 2500 (20 0 40 80 METRES)

FIG. 40

892172





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ELLIOTT BAY – E.L. 40/85

WATERLOO CREEK

SOIL GEOCHEMISTRY

ARSENIC (ppm)

SCALE 1 : 2500

DRAWN BY : R.H.

DRAFTSMAN: T.G.D.S.

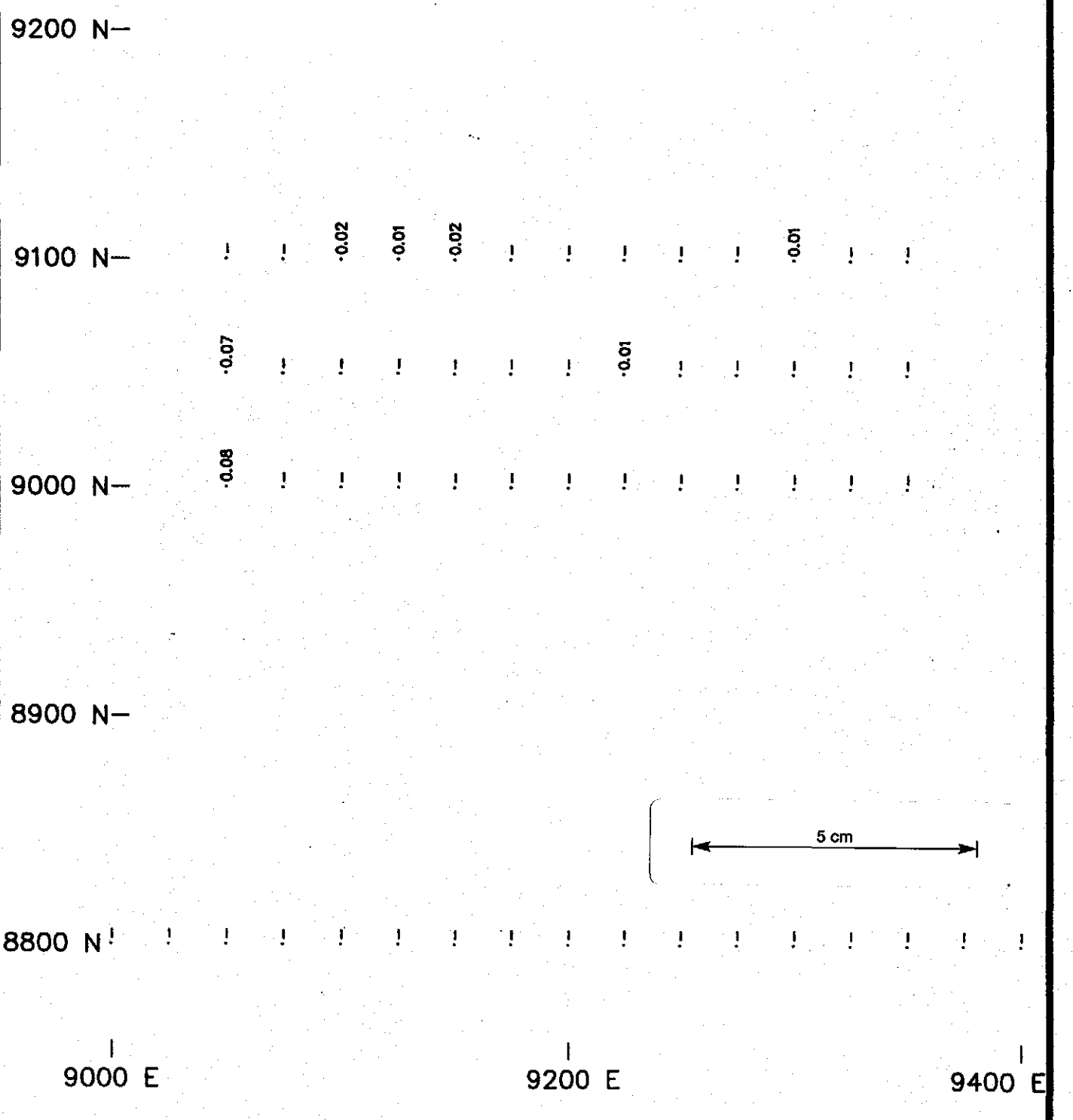
DATE : May '87

REVISIONS :

FILE NO.

FIG. 41

892173



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ELLIOTT BAY – E.L. 40/85

WATERLOO CREEK

SOIL GEOCHEMISTRY

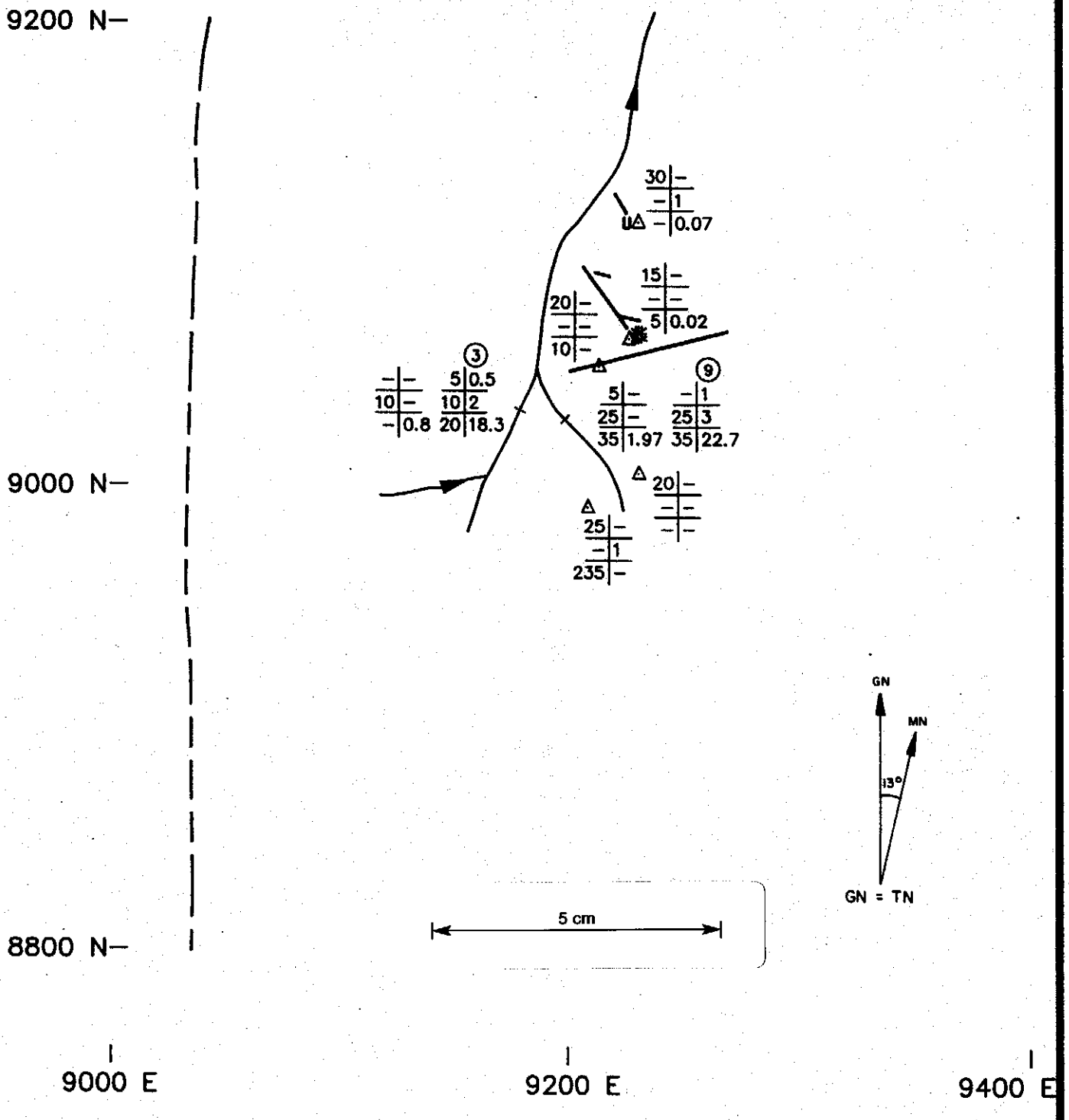
GOLD (ppm)

DRAWN BY : R.H.
DRAFTSMAN: T.G.D.S.
DATE :May '87
REVISIONS :
FILE NO.

SCALE 1 : 2500 METRES

FIG. 42

892174



LEGEND

ROCK CHIP

Δ Cu | Ag / Pb | As / Zn | Au

STREAM SEDIMENT

③ Grain count

Cu | Ag / Pb | As / Zn | Au Cu | Ag / Pb | As / Zn | Au

-80# Panned Concentrate

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WATERLOO CREEK

Rock Chip

&

Stream Sediment Results

SCALE 1 : 2500 (20 0 40 80 METRES)

DRAWN BY : R.H.

DRAFTSMAN: T.G.D.S.

DATE : May '87

REVISIONS :

FILE NO.

FIG. 43

EXPLORATION POTENTIAL

Potential exists for polymetallic massive sulfide lead-zinc mineralization in major zones of structural deformation in close proximity to the Osmund or Copper Creek Faults. The 1986/87 seasons exploration program has indicated intrusive-related gold mineralization does occur at Elliott Bay, the best example being the North Lewis prospect. Potential for intrusive-related replacement/skarn, stockwork vein, disseminated or breccia-type gold mineralization is considered high at Elliott Bay. More work of intrusive contacts is warranted.

EXPLORATION PROGRAM

The 1987/88 field season program will be split into three parts. Field work will commence January/February and finish in March/April 1988.

Part 1 evaluation of gravity data and computer enchanced magnetics by Mitre Geophysics

Part 2 diamond drilling of North Lewis, Voyager 24 and Wart Hill prospects

Part 3 follow-up of regional stream anomalies, further stream sampling and regional mapping of prospective zones

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CYPRUS MINERALS AUSTRALIA COMPANY

EXPENDITURE FOR THE PERIOD JUNE 1, 1986 TO MAY 31, 1987

EXPLORATION LICENCE 40/85 ELLIOTT BAY - TASMANIA

	$
Salaries & Wages	71,058.03
Benefits	8,352.08
Drafting	14,630.01
Cookery	15,088.55
Field Office Rent	352.97
Field Supplies - General	7,757.08
Freight	4,013.49
Aircraft Charter	78,566.00
Travel	12,635.81
Communications	1,991.78
Consulting Fees	10,226.96
Assays	28,748.15
Contract Geological	19,891.10
Geophysics	10,844.83
Other Contractors	52,520.55
Equipment Rental	12,532.52
Equipment Operation & Maintenance	4,403.85
Property Payments	6,239.36
Data Processing Fees	250.00
	360,103.12
Overhead at 10%	36,010.31
Total	396,113.43

M Bass
Accountant

ACKNOWLEDGEMENTS

Sections of this report are attributed to the writers as follows:

Wanderer South	R Poltock
Wooloomooloo Creek	R Poltock
Python Pit	C Torrey
Mt Osmund West	C Torrey
Mainwaring River	C Torrey
Mt Osmund East	C Torrey
Waterloo Creek North	C Torrey
North Lewis	R Hartley
Voyager 6	C Torrey & R Poltock
Wart Hill	C Torrey
Penders Prospect	C Torrey
Voyager 24	C Torrey
Voyager 18-23 Coastal Section	C Torrey
Porphyry Dolerite Contact	R Poltock

Magnetic Anomaly 5	R Poltock
Magnetic Anomalies 1 to 4	R Hartley
North Porphyry Contact	R Poltock
Lewis River	R Hartley
Waterloo Creek	R Hartley

The report has been compiled and collated by Chris Torrey.

Signed _____

Chris Torrey

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APPENDIX 1

INTERPRETATION OF ELECTRICAL AND ELECTROMAGNETIC SURVEYS AT ELLIOTT BAY (EL 40/85)

by Mitre Geophysics

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INTERPRETATION OF ELECTRICAL AND ELECTROMAGNETIC SURVEYS AT ELLIOTT BAY (E.L. 40/85).

for

Cyprus Minerals Australia Company

by

Dr J.R. Bishop

CM/MG86/07
Oct., 1986

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SUMMMARY

A Dighem survey over the northern section of E.L. 40/85 has not produced any responses of prime interest, however a number of anomalous zones have been chosen for follow up. Similarly, examination of IP and UTEM surveys carried out for Geopeko in the Wart Hill area has not lead to any VMS targets, but the results may assist a gold exploration program.

Despite these negative findings, Elliott Bay is still a highly prospective area. Large regions with favourable lithologies remain ungridded and little explored. It is recommended that these areas be covered by gradient array IP surveys to look for zones of alteration.

INTRODUCTION

E.L. 40/85 (Elliott Bay) covers the southern section of the highly mineralised Mt Read Volcanics which form a long, arcuate belt across western Tasmania. The licence is held by Cyprus Minerals who are managing the exploration program with Poseidon as a joint venture partner.

Elliott Bay is a remote area within the Southwest Conservation Area. Access is by aeroplane to a landing strip in the north of the licence or, since much of the lease is open button-grass, by helicopter. A disused track to the lighthouse at Low Rocky Point runs through the area and Cyprus used a four wheel motorcycle along this track during the 1985/86 field season, to ferry gear to the campsites. Poor weather for seven or eight months of the year usually restricts field work to the summer season.

A Dighem survey was carried out over the northern section of the licence for the joint venture partners in January, 1986. This report evaluates the results of that survey and the follow-up field work using the Maxmin electromagnetic (EM) system. It also comments on the induced polarisation (IP) and UTEM surveys undertaken for the previous licence-holders, Geopeko.

EXPLORATION TARGETS AND GEOLOGICAL SETTING

The prime target is for a polymetallic volcanogenic massive sulphide (VMS) body, similar to those found at the Rosebery and Hellyer mines. The prospectivity of the Elliott Bay licence has been considerably enhanced by the discovery, by Geopeko, of two small pods of such sulphides.

A secondary target is for a volcanic-hosted gold deposit. Although there are no type deposits within the Mt Read Volcanics, an area anomalously high in gold has been defined within E.L. 40/85 and other exploration companies are having some encouragement elsewhere in the belt.

Geophysical surveys over Rosebery, Que River and Hellyer and petrophysical measurements of samples, have shown these ores to have similar properties. They are not magnetic, but they are chargeable, dense and good, though not excellent, conductors. Testing of two samples from the Elliott Bay sulphides indicates that deposits with rather less desirable geophysical properties may occur here. The results, given in Table 1, are much less chargeable and only weakly conductive. Although only two specimens have been measured, the results are in agreement with detailed IP surveys which were carried out by Geopeko over both pods.

The sulphide pods occur within a belt of north-south striking pyroclastics which have been classified as direct correlates of the 'Central Belt' of the Cambrian Mt Read Volcanics in the Queenstown area. These rocks, the Lewis River Volcanics, occupy

the central and eastern parts of the licence. In the north-central section, they are overlain by a syncline of Late-Cambrian (Tyndall Group) and Ordovician sediments. On the western flank of the licence there are basic Cambrian volcanics of the Mainwaring Group and sediments correlated with the 'Western Sequence' of the Mt Read Volcanics (see Figure 1). Thus the regional strike is approximately north-south, with the rocks interpreted to face, and dip steeply, to the west. Black shales occur in both the Tyndall Group and Western Sequence and these may give rise to IP &/or EM responses.

EXPLORATION HISTORY

The Elliott Bay area was first held by Mt Lyell and EZ (the LEE syndicate) in the 1950's and early 1960's, as part of their large southwest exploration licence. They flew an aeromagnetic survey over the area and may have done some ground work at Elliott Bay, but no search has been made for any record of this.

The area was next held by BHP as part of E.L. 13/65. In 1975, Geoex carried out a helicopter-borne EM and magnetic survey using the McPhar H-400 system for BHP, who dropped the ground before following up the 100 or so anomalies defined by the survey.

The ground was picked up by Geopeko (as E.L. 27/76). Initially, they followed up the airborne EM and magnetic anomalies defined by the H-400 survey, as well as investigating several old workings. During the 1981/82 field seasons, two small, high-grade Pb-Zn-Ag lenses were discovered during a soil geochemistry survey. A large area of anomalous gold in stream sediments was also defined.

In 1982/83, a dipole-dipole IP survey and c-horizon soil geochemistry program covered the altered rocks around the VMS deposits. No good targets were defined by this survey and in the 1983/84 season, the exploration program concentrated on the potential of the gold zone, with disappointing results. The results of the IP survey are further discussed later in this report. During the next field season, a UTEM survey was carried out over several of the better prospects covered by the IP survey, to explore to greater depths (ie, say 150m to 250m compared to 50m to 100m for the IP). No obvious VMS targets were defined by this survey, but a detailed interpretation is given below.

Apart from the areas covered in detail by the IP, UTEM and geochemistry, Geopeko have looked at a number of other prospects, apparently in isolation (a total of 35 'Voyager' prospects; V1 to V36, with no V13). That is, there are no maps showing a synthesis of their work. It is recommended later in this report that such a compilation be carried out by Cyprus. Several of the prospects showed interesting results and some of these were recommended for further investigation by Geopeko's geologists.

Cyprus' first field season started in March, 1986 following the Dighem survey in January. Work consisted of Maxmin surveys along reconnaissance lines to locate anomalies picked from a preliminary interpretation of the Dighem results (Bishop, 1986). These lines were also soil sampled and geologicallly mapped. The traverses covered are shown in Figure 2 and a report on the work is given by Jones (1986). The Maxmin results are also discussed below.

SURVEY DETAILS

DIGHEM

The Dighem survey was carried out in January, 1986. It covered about 700 line-kms, using a nominal line spacing of 150m and a nominal terrain clearance of 30m. The system used coaxial and coplanar coils at ~900Hz and coplanar coils at 7200Hz. A Geometrics G813 magnetometer monitored the total magnetic field. Flight line positioning was done from strip film only (no navigation systems) and recovery was apparently difficult over the largely featureless (and forested) western side of the licence (see later coments).

The usual Dighem maps of EM anomalies; apparent resistivity (assuming a uniform earth); magnetics and high-pass filtered magnetics were produced on photo-mosaic bases at 1:10,000 scale (see Kilty, 1986). The location of the EM anomalies is shown in Figure 2 of this report. Only responses interpreted as bedrock conductors have been differentiated here. For the more detailed classifications, the reader is referred to the original Dighem maps.

MAXMIN

Location of the preliminary Dighem anomalies was carried out using the Maxmin EM system. The planned traverses were surveyed with compass, tape and clinometer and flagged at horizontally corrected 25m intervals. The % inclination for each 25m interval was recorded and this data was then used to slope-correct the Maxmin readings.

The survey was carried out with the coils horizontal (ie, vertical axes) at a 100m spacing. Three frequencies, 3555; 888 & 222Hz, were read at 25m station spacings. The results have been presented as profiles at 1:5,000 in Jones (1986).

INDUCED POLARISATION

The survey was carried out by Geopeko during the 1982/83 field season. Two different IP receivers were used: an IPR-11 and an IPR-8. The latter instrument was used in the more inaccessible areas. For plotting, the decay between 510 and 1050msecs was used

for the IPR-11 results (channel 6+7) and for the IPR-8, the decay between 650 and 1170msecs (channel 232): both measuring a 2 second on, 2 second off square wave pulse. For both receivers a dipole-dipole array was used with a 50m dipole spacing, read to n=6 and a line separation of 200m (with some infill lines). Sumpton (in Herrmann, 1983) found that channel 232 on the IPR-8 gave a chargeability reading about 3 times the plotted IPR-11 value and the contours in Figure 3 tend to confirm this conversion factor. The resistivities (Figure 4) are instrument independant.

There are a number of areas where the IP data is of doubtful quality (eg, isolated 'diagonals' of high numbers; negative values) and Sumpton (in Herrmann, 1983) noted that the IPR-11 did "suffer moisture related problems". A repeat survey was carried out over one apparently interesting response (line 11400N; Herrmann and Sumpton, 1984) and different, non-anomalous, results were obtained.

The data have been presented by Geopeko as pseudosections in book form; one book of chargeabilities and a second one of resistivities, both at 1:5,000 scale. Those sections considered anomalous, are shown in Herrmann (1983). Geopeko also produced 1:10,000 scale plans with most of the pseudosections shown (data from the few 100m infill lines are missing).

UTEM

The survey was carried out by Lamontagne Geophysics in March, 1984 for Geopeko. A total of four loops, each 800m x 1600m were used for the survey. One loop covered V19; two loops covered the area immediately to the south (V29 & V29W) and the fourth loop covered V9, further to the south again (see Figure 5). A station spacing of 25m was used with line spacings of 100m or 200m. Only the vertical component was measured, using a frequency of 26Hz.

Data quality was reasonably good with some noise towards the ends of the 1000m+ lines. Some lines on loop 1 apparently suffered from a (?)'sync' problem with the early-time channels having large offsets. The data appears as 1:5,000 scale profiles in Herrmann and Sumpton (1984).

INTERPRETATION

DIGHEM

The Dighem survey was designed to cover the northern section of the licence which was largely unexplored. The survey was split into two halves, east and west of the Mt Osmund syncline.

A preliminary interpretation, from the analog records, was carried out at the completion of the survey. All possible anomalies were noted under three classifications. Those responses which

had in-phase excursions on the 900Hz channels were given the highest grade (#A); those with in-phase excursions on the 7200Hz were classed as intermediate (#B); while those with out-of-phase on 7200Hz only, were given the lowest grading (#C). These results are given in Jones (1986). Only two #A responses were located over the Lewis River Volcanics and these were in close proximity to the conductive Tertiary gravels in the north-east corner of the survey. A large number of #B and #C grade responses were picked over the Volcanics on the eastern side of the syncline with a considerably fewer number on the western side. This preliminary interpretation formed the basis of the first season's field work which located several weak conductors (see later, under Maxmin). The follow up of the 'preliminary anomalies' was not completed, but the areas have been superceded by the prospects recommended below.

The final Dighem results were delivered in July; difficulty in flight line location being blamed for the long delay. Some idea of the accuracy of the survey can be obtained by comparing the results with those from the adjacent Sorell survey. Figure 6 compares the EM responses in one area of overlap. Some of the differences in the results can perhaps be ascribed to improvements in instrumentation, but the poor correspondence between the two EM maps is certainly cause for concern. These differences were being discussed with Dighem Ltd at the time of writing this report.

The survey recorded a large number of weak, low amplitude responses which were mostly interpreted as being due to surficial sources (Kilty, 1986). Very few responses were interpreted as being due to bedrock conductors and those that were, are mostly of small amplitude thus making the interpretation less certain. (Thus it is also possible that some of the low amplitude responses interpreted as being due to surficial sources, may in fact be caused by bedrock conductors.) Several of the interpreted bedrock responses are outside of the E.L. boundary, but these lie either within E.L. 37/83 or in the narrow strip of vacant ground between the two licences, thus all anomalies are dealt with in this report.

A total of 17 anomalies or zones of anomalies have been picked for follow up. The strongest response lies on the 'Spero River' sheet. Although geophysically the best response and given priority '1', the northern section of the zone may coincide with the edge of the conductive Tertiary gravels and the whole zone may be within the Tyndall Group, which is usually regarded as a less prospective unit of the Mt Read Volcanics.

The remaining anomalies are geophysically much poorer, but most are in more favourable locations. Kilty (1986) suggests (weakly conducting and magnetic) sulphides as a cause for only one

---

* Cyprus Minerals is a joint venture partner in E.L. 37/83 and manages the exploration program there.

response and this is a possible ('X') anomaly. For the other bedrock conductors, geologic contacts are mostly suggested. Nevertheless, some of these should be followed up. The anomalies to be further investigated are listed in Table 2 and shown in Figure 7 with numbering in order of priority.

The Dighem survey has also produced some detailed aeromagnetic maps with 5nt contouring. There is little response on the eastern side of the syncline, but on the western side, the relatively non-magnetic and little explored acid volcanics can be distinguished from the more basic rocks .

MAXMIN

Following the preliminary interpretation of the Dighem results, a number of zones were chosen for follow up. The Maxmin system was used to try and locate the Dighem responses on the ground and it was largely successful. Ten areas were picked and labelled in order of priority (see Figure 2), however a geographical approach was taken for the field program, starting from the northeast corner.

A total of 15 lines were surveyed with Maxmin, which covered prospects 1, 2 & 7. On most lines there was a good correspondence with the interpreted Dighem responses. However all of the Maxmin responses were small amplitude, out-of-phase, local anomalies indicating surficial zones of low resistivity. Most of these lines were also surveyed with a magnetometer and soil sampled. Some high base-metal values were obtained, but since no geophysical target has been defined, these will not be immediately followed up. Some further work; eg, a fixed loop EM survey, giving a deeper penetration, could be carried out if the geology was considered favourable.

INDUCED POLARISATION

Geopeko carried out this survey, which covered about 25 sq km of "favourable lithologies" to try and locate a VMS deposit buried to 100m or less from the surface. The results were rather disappointing; no good, well defined responses were obtained away from the graphitic shales. The data was integrated with geochem and geology and by 'over-interpreting', a total of 60 anomalies were defined by Geopeko. Three of these were recommended for drilling of which only one was largely based on the IP: this was at 9400E/11400N. Since this anomaly included some suspect data, the line was resurveyed and no results of interest were recorded by the repeat survey.

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* One of the reasons for the overlap between the Sorell and Elliott Bay Dighem surveys, was to allow merging of the magnetic data from these two surveys but so far, this has not been done.



To give an over-view of the results, Geopeko presented the results as 'stacked pseudosections' at 1:10,000 scale. Coloured in, this gives some appreciation of the response levels. However for this report, the data has been averaged as described by Fraser (1981), which makes the data readily amenable to contouring (assuming a factor of 3 for the difference between the two types of IP receivers).

Figure 3 shows a fairly uniform chargeability contour plan. The high values at the northwestern corner are due to black shales at both ends of the lines. The V19 massive sulphides occur in this region, but cause only a gentle widening of the lowest (5msec) contour. The anomalous zone in the centre of the survey (lines 10,000N to 11,000N) is also ascribed to black shales within the Tyndall Group at the southern end of the Mt Osmund syncline. The 5+msec values in the southwest quarter of the survey overlie a granitic intrusion and dacitic lavas and tuffs. This last unit is host to the V24 gold mineralisation, however the chargeabilities may be largely due to black shales in this area (Large, 1985). Certainly the results do not appear to correlate with the V24 mineralisation. However in the southeast quadrant, they do appear to define an interesting elongate feature partially enclosing the V9 prospect.

UTEM

No formal interpretation of the UTEM survey was produced by Geopeko. Herrmann and Sumpton (1984) stated that "the results of the survey were on the whole disappointing, with no conductors being detected which are likely to relate to massive sulphide mineralisation".

A detailed interpretation of the UTEM survey has been carried out here. This was deemed necessary since a buried, possibly poor conductor would give only a subtle response. The results are given in Figure 5. The responses were picked independant of the geology and location and apart from the black shales, the most pronounced anomalies do occur in the vicinity of the V19 sulphides. However, since only shallow depths are indicated (30-40m & ~50m, assuming line sources, for responses at 10025E/13200N and 10100E/13400N respectively) and since there were no corresponding anomalies from either of Geopeko's gravity or IP surveys, the sources are unlikely to be massive sulphides.

Pronounced anomalies were also interpreted on the two southernmost lines of the V9 grid, as was pointed out by Herrmann and Sumpton (1984). Again shallow causes were indicated (<30m) and since there were no corresponding IP anomalies, a VMS deposit is an unlikely source. However these two anomalies, at 10975E/7600N and 11600E/7800N, are within a zone of elevated chargeabilities and being coincident with a mapped fault, the area may have potential for a structurally controlled gold deposit. Being on the southernmost lines, the zone is open to the south.

Pronounced anomalies are of course not necessarily those associated with ore deposits. A subtle response, preferably extending out to late times is a more likely target. No responses were picked extending out to late times, but given enough geological encouragement, some of the responses shown in Figure 5 could be recommended for drilling, on the assumption that the source had properties similar to those listed in Table 1.

CONCLUSIONS AND RECOMMENDATIONS

The Dighem survey has defined one good anomalous zone, located in an area of possible interest and a number of poor anomalies in areas of definite interest. A list of those anomalies chosen for ground follow up is given in Table 2 in order of priority.

Geopeko's semi-regional IP survey covered an area of alteration around known mineralisation. No VMS targets have been defined from this evaluation of the data, but a resistive zone may extend the V24 gold belt and the V9 chargeability zone may also be of interest for gold. Similarly, no drill targets have been recommended following the integration of the UTEM survey, but several responses lie within the V9 grid and may have structural relevance for gold.

A strong recommendation is made for a compilation of all of Geopeko's geophysical and geochemical data onto a series of 1:25,000 maps. This would permit a proper evaluation of the considerable amount of data gathered by the company and, most importantly, highlight those areas with prospective lithology which have received little attention or which showed early promise, but which were by-passed for apparently more promising areas.

Given the low percentage of outcrop within the licence, it is suggested that a gradient array IP survey may be the best way of rapidly evaluating the large areas of acid volcanics not examined by Geopeko. Whilst little depth penetration would be achieved, the survey should respond to pyritised 'host horizons' and thus considerably reduce the area of prospective ground to be explored. It is also possible that such a survey, in conjunction with a soil geochemistry program, would discover a relatively shallow deposit, such as occurs at V19.

The limited petrophysical measurements of the V19 samples have suggested that resistive bodies with low chargeability may constitute an economic target. Such bodies would be more difficult to find than the expected 'typical' west coast VMS deposit and a quite different exploration approach would be required. It is recommended that further measurements be made of the V19 mineralisation and if the results are confirmed and V19 type bodies are considered to be an attractive target, then some effort should be expended to determine why V19 is different and whether much larger bodies with similar properties are likely to occur.

Oct., 1986.

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Table 1

Petrophysical Measurements

The measurements were made on two hand-sized massive sulphide samples taken from a costean at Voyager 19.

SAMPLE No.	DENSITY t/m^3	MAGNETIC SUSCEPTIBILITY x 10^{-6} cgs units	CONDUCTIVITY @ 2.5MHz S/m	RESISTIVITY @ 0.1Hz ohm-m	IP EFFECT P.F.E. 0.1-1.0Hz	IP EFFECT Phase 0.1Hz
26/1a	4.39	20	negligible	1.9	0	0
26/1b	4.51	20	"	0.8	2	16
26/2a	3.74	20	"	(face 1) 632 (face 2) 805	16 14	104 71
26/2b	3.30	20	"	72	10	37

Measurements were made at the University of Sydney's petrophysical laboratory in July, 1986.

Electrical measurements were made using 4 electrodes on the sample surface.

Table 2

Summary of Recommendations

(A)

Follow up of Dighem anomalies.
(listed below in order of priority)

(1) 20031F-20040F-20050D-20060F-20070D-20080D-20090C. 20040H & 20050XB.

(2) 20120B-20130A-20140A-20150B-20160C-20170B-20180C-20192B-20200A-20210B-20221C.

(3) 20140B-20150C-20160D.

(4) 20180D-20192C.

(5) 20210D-20221D.

(6) 20440B-20451XB.

(7) 20230XD-20240D-20251XD.

(8) 20390A-20400B-20410A-20421A.

(9a) 20700A-20710B-20720B-20731B-20740A-20750D.
(9b) 20800B-20810A-20820B-20830C-20840XD.

(10) 20810XA-20820XB.

(11) 20760A-20770B-20780C-20790C.

(12) 30740C-30750C-30760C-30770C-30770XA-30780E-30790B-30800A-30810A-30820D-30830B.

(13) 30820E-30830C.

(14) 30900D-30910C-30920C.

(15) 30910A-30920B-30930A.

(16) 30540B-30550A-30560B-30570A.

(17) 30540A.

(B)

Down-hole EM surveys down any open holes at V19 and possibly at other prospects. The economics of reaming out blocked holes should also be examined.

Summary of Recommendations (continued).

(C) A compilation of all of Geopeko's geophysical and geochemical data onto 1:25,000 scale maps.

(D) Regional gradient array IP surveys over prospective lithologies not gridded by Geopeko. The exact areas to be determined from (C) above.

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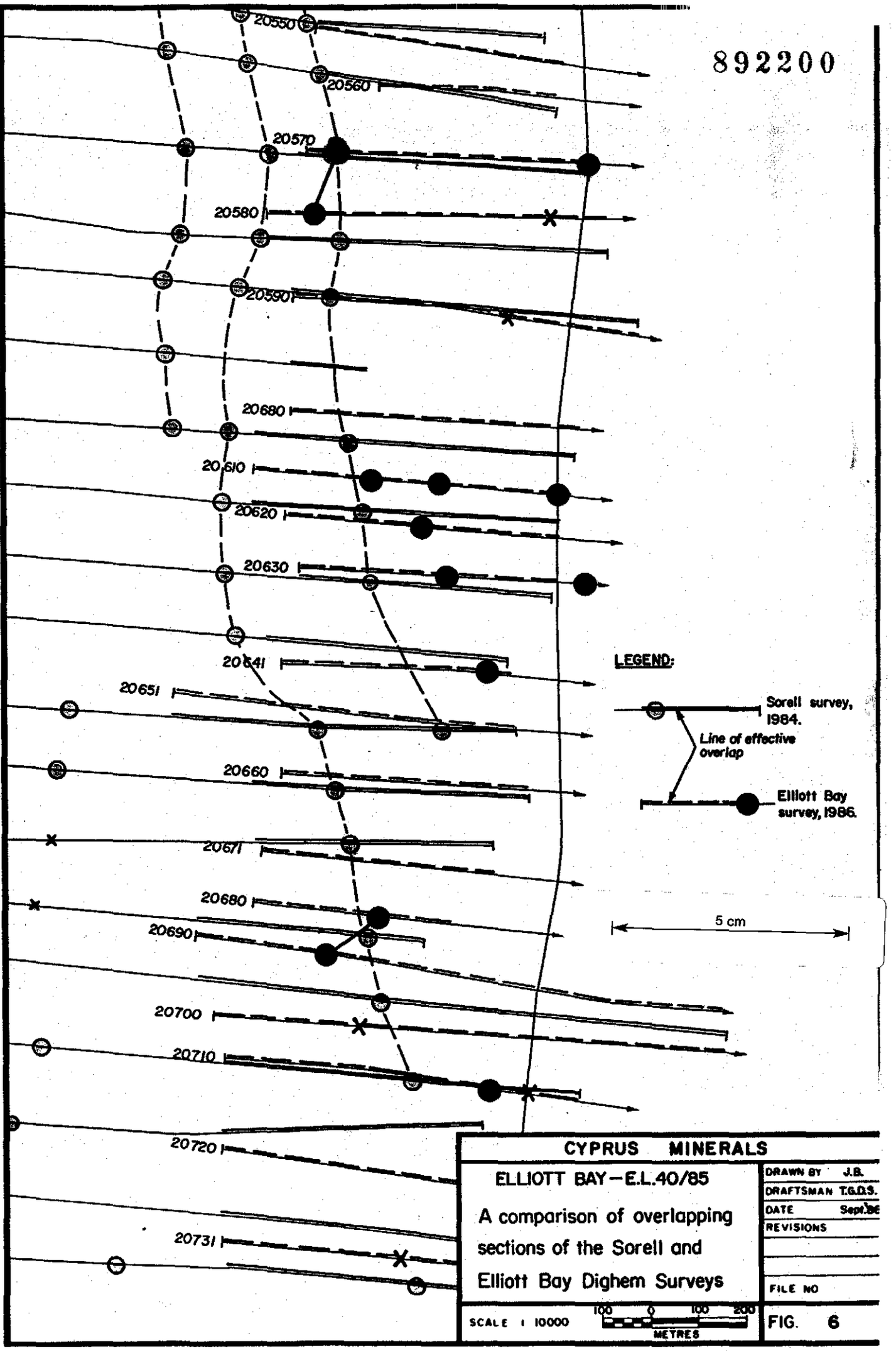

CYPRUS MINERALS

ELLIOTT BAY – E.L.40/85

A comparison of overlapping sections of the Sorell and Elliott Bay Dighem Surveys

DRAWN BY	J.B.
DRAFTSMAN	T.G.D.S.
DATE	Sept.'86
REVISIONS	
FILE NO	

SCALE 1 10000 — 100 0 100 200 METRES

FIG. 6

APPENDIX 2

MINERALOGRAPHIC DESCRIPTIONS

by Amdel

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6 April 1987

GS 3/1030/0

Cyprus Minerals Australia Company,
P.O. Box 230,
ZEEHAN, TAS. 7469

ATT: MR. CHRIS TORREY - GEOLOGIST-IN-CHARGE

REPORT G 7023/87

YOUR REFERENCE:	Letter dated 20/3/87 and Order No. E00255
IDENTIFICATION:	202610, 202540, 171647, 171494, 202618 and 202611
MATERIAL:	Pan concentrate samples
DATE RECEIVED:	27 March 1987
WORK REQUIRED:	Mineral identification

Investigation and Report by: Frank Radke and Dr Roger Brown

Manager - Geological Services: Dr Keith J Henley

Keith Henley

for Dr William G Spencer
General Manager
Applied Sciences Group

bp

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amdel

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MINERALOGY OF SIX SAMPLES

1. INTRODUCTION

Six pan concentrate samples were submitted by the Zeehan base (Mr. Chris Torrey) of Cyprus Minerals Australia Company for mineralogical examination. Five of the samples (202610, 202540, 171647, 171494 and 202618) contained abundant dark grains considered by Mr. E. James to be cassiterite. Identification of the dark grains was requested by optical methods with confirmation by scanning electron microscopy. One sample (No. 202611) consisted of 5 bluish-coloured, transparent to translucent, prismatic grains for positive identification.

2. IDENTIFICATION OF SAMPLE 202611

A portion of each grain was powdered and examined in a temporary oil mount with a petrographic microscope. All 5 grains are similar consisting of prismatic cleavage fragments with inclined extinction and a high refractive index (R.I. >1.63). The grains are all considered to be kyanite. One grain was finely powdered and examined by X-ray diffractometry confirming it as kyanite.

3. DARK MINERAL IDENTIFICATIONS

3.1 Procedure

Samples 202610, 202540, 171647 and 171494 were separated in methylene iodide (sp. gr. = 3.3) to concentrate the dense, dark coloured minerals into the heavy product. Polished sections (PS46549-53) were made of the heavy products and of the six dark grains which comprised Sample 202618. The polished sections were microscopically examined in reflected light and mineral identifications confirmed with the scanning electron microscope.

3.2 Results

Heavy liquid separation gave the following proportions of heavy products.

Sample	% Sp. Gr. >3.3
202610	69.9
202540	32.4
171647	26.4
171494	48.5

The mineralogy of the heavy products is as follows.

Sample	Mineralogy
202610	Rutile
202540	Abundant dense non-opaques with about 10% rutile and very minor ilmenite and altered ilmenite.
171647	Mainly rutile with minor ilmenite and altered ilmenite. Some zircon and dense non-opaques also present.
171494	Mainly ilmenite and altered ilmenite. Trace of chromite. Minor dense non-opaques.

The six grains of sample 202618 are all rutile although some show exsolution of an Fe-Ti mineral (possibly pseudobrookite).

The rutile and ilmenite in all samples as well as the chromite in sample 171494 was confirmed by semi-quantitative analysis with a scanning electron microscope.

APPENDIX 3

DIAMOND DRILLHOLE LOG - V12/5 (RE LOG)

205

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drill log cover sheet

Project ELLIOTT BAY Prospect NORTH LEWIS Hole V12/5

Co-ordinates 275 mN 63.5 mE Logged by R.J. HARLEY

AMG reference		Drilling company	
County		Rig type	Mindrill F30
Parish		Drilling type	Diamond
Portion		Hole size	
Elevation		Core size	0-138.7 NQ 138.7-163.65 BQ
Declination	-60°	Depth of casing	
Direction	90° G 775°M 90° T	Assay sample type	Half Core
Commenced	23/3/80	Water table yields	
Completed	6/4/80	Water yields	
Total Depth	100m		

Borehole survey

Type Eastman Single Shot

Depth	Dip	Brg.	Depth	Dip	Brg.	Depth	Dip	Brg.	Depth	Dip	Brg.
160	-52°	80.5°									

Notes

CYPRUS

892207

geology

Project ELLIOTT BAY Prospect NORTH LEWIS Hole V12 DDH-5

From	To	Code	Description (mineralization in bold type)
0	6		No Core.
6	14.25		Coarse. Rhyolitic quartz crystal tuff. Pale to mid grey; medium to coarse grained; moderately weathered; moderately foliated; highly limonite stained and fractured rhyolitic quartz crystal tuff. Rock consists of 1-10mm diameter equant to rounded quartz crystals (20% of rock) within a very fine groundmass of quartz 30%, feldspar 25%, chlorite 10%, sericite 1-5% and rare biotite. The quartz crystals average at 2-5mm in diameter commonly sub-rounded to rounded and dominantly elongate parallel to schistosity. Most large quartz grains contain micro fractures normal to the schistosity, probably caused to relieve strain during deformation. At 10.65m one 7mm diameter round quartz grain appears to have subhedral 4mm quartz crystal surrounded by fine radiating crystals outgrowths. The chlorite is highly variable occurring either as patches up to 2cm in diameter, replacing minerals in groundmass or as subhedral flakes, possibly after biotite, often becoming continuous elongated wisps strongly defining the schistosity. Feldspar is very fine, although occurs rarely as crystals up to 2mm in diameter and is estimated from the amount of clay present in upper weathered portion of the unit. 6-7m Strongly bleached and clay rich (35%), minor limonite staining along micro fractures restricted to 5cm wide zones. Quartz crystals dominantly 1-2mm in diameter and euhedral. Highly weathered and broken, no core 75cm long. No chlorite or biotite. 7-10.45m Pale grey, strongly limonitic stained and extremely broken core. Highly brecciated unit with major limonite infilled fractures, often completely obscuring matrix quartz crystals 2-5mm diameter, and predominantly rounded. 10.45-14.25m Mid grey, slightly weathered with minor limonite occurring mostly on joint surfaces. Quartz crystals 2-6mm in diameter and sub-

geology

Project ELLIOTT BAY Prospect NORTH LEWIS Hole V12 DDH-5

From	To	Code	Description (mineralization in bold type)
			rounded to rounded, weakly aligned elongate parallel to schistosity. Core moderately broken with 50% RQD.
			12.70-12.95m Major limonite infilled fractures, highly brecciated zone with a 2cm wide dark grey-black band, with minor fractured quartz, possible quartz - tourmaline breccia vein.
			14.25m Lower contact broken but appears to be abrupt.
14.25	22		Tuffaceous siltstone.
			Pale grey-cream, very fine grained, thinly banded parallel to moderate schistosity at 45 to core axis; moderately to locally highly limonite stained, cataclistic textured, tuffaceous siltstone.
			Rock consists of alternating cream and mid grey beds, thinly to thickly interlayered. The darker beds probably contain fine graphitic material overall, to sediment appears to be derived from a rhyolitic tuff source, and have been deposited in a low energy environment fairly distant to any volcanisim.
			The rock has been moderately brecciated, with large angular interstitial fragments with limonite, infilled fractures. Larger fractures up to 1cm wide, are vughy with fine limonitic boxworks, probably exsolution of quartz at fold nose, the graphitic beds appear to have been more ductile and have folded without fracturing.
			19.2-19.5m Extremely limonite stained, with 1cm wide quartz-tourmaline breccia vein, at approximately 30 to core axis, long axis parallel to schistosity. Original rock texture mostly obscured by limonite.
			20.05-20.15m Highly limonite stained, with a 1.5cm wide quartz-tourmaline breccia vein, parallel to schistosity.
			20.7-20.77m Extremely dull red iron oxide stained and brecciated unit.

892209

geology

Project ELLIOTT BAY Prospect NORTH LEWIS Hole V12 DDH-5

From	To	Code	Description (mineralization in bold type)
			22m Lower contact abrupt but broken, 10cm of slightly clay altered rubble occurs at contact.
22	23.25		Medium Rhyolitic quartz (feldspar) crystal tuff. Pale grey; fine to medium grained; moderately siliceous; slightly limonite stained, highly broken, dolete quartz crystal tuff. Rock very similar to previous unit, however chlorite 15-20% and quartz crystals are slightly smaller in diameter and mostly all well rounded. 23.25m Lower contact abrupt but broken.
23.25	26.8		Tuffaceous siltstone. Pale to mid grey; very fine grained, thinly to thickly bedded; slightly schistose; moderately limonite stained; catoclostic textured tuffaceous siltstone. Very similar to previous siltstone unit. Minor zones of intensity brecciated and thinly laminated siltstones or probably cherts occur with some minor milling of breccia fragments to produce sub-rounded clasts in 1-2cm wide zones. RQD 30% 26.8m Lower contact abrupt but broken.
26.8	136.2		Coarse Rhyolitic Quartz Crystal Tuff. Pale grey; medium to coarse grained,; moderately schistose; slightly weathered to fresh; highly to rarely limonite stained; rhyolitic quartz crystal tuff. Rock consists of 1-10mm quartz crystals, commonly 2-5mm within a very fine matrix of quartz 50%, feldspar 35%, chlorite 5%, sericite 5-10%, biotile 5%. Quartz crystals mostly rounded-sub-angular and commonly crudely elongate parallel to schistosity. Unit very similar to interval 7-14.25m. Average RQD 40%, locally to 0%, Depth of oxidation 69m.

geology

892210

Project ELLIOTT BAY Prospect NORTH LEWIS Hole V12 DDH-5

From	To	Code	Description (mineralization in bold type)
			26.8-38.25m Highly weathered and limonite stained unit. Minor clay 1-5%. Locally moderately brecciated in zones up to 10cm wide. Minor gossanous veins 1 per metre, up to 3cm wide and comprised of limonitic pyrite boxworks. Minor friable zones.
			30.2-30.25m Gossanous vein and intense limonitic staining.
			34.4-34.45m Gossanous vein.
			36.85-36.87m Gossanous vein.
			38.2-38.23m Gossanous vein and remnant pyrite.
			38.25-46.3m Highly to moderately limonite stained, no clay and RQD 65-70%. Silicified, extremely fractured and limonite infilled with minor gossanous veins.
			39.3-39.55m Extremely limonite stained, with breccia infilling of gossanous pyrite boxworks.
			40.5-40.95m Highly limonite stained zone with moderate gossanous patches interconnected by fine veinlets. Veins mostly parallel to schistosity.
			42.95-43m Gossanous vein with pyrite boxwork.
			46.3m Gradational contact.
			46.3-69.3m Moderately to slightly limonite stained, moderately broken, RQD 20%. Rare gossanous veins, mostly limonite staining along joints and fractures. Minor brecciation. Rock appears to be quite bleached and slightly silicified. Minor 1-3mm dark grey equant blobs occur throughout, possibly after biotites, as they are often foliated.
			46.5m Quartz-chlorite vein, 1cm wide, cross cuts foliation.
			53.4-53.42m Gossanous vein

geology

Project ELLIOTT BAY Prospect NORTH LEWIS Hole V12 DDH-5

From	To	Code	Description (mineralization in bold type)
			56.35-57.1m Fractured Quartz vein and minor limonite on fracture joints also minor pale green sericite.
			61.6-61.75m Fractured quartz vein and limonite stained.
			63-69.3m Minor pale green sericite in mature, slightly limonite stained and mostly cream clay infilling fractures.
			69.3m Lower contact gradational, defined by decrease in limonite.
			69.3-136.2m Fresh rhyolitic quartz crystal tuff with rare locallised limonite staining and moderate alterations. RQD 10-15%.
			70-70.05m Fine grained, limonite stained rock with 25% pyrite as thin wispy blobs disseminated throughout. Rock is very suspicious, possibly not originally from this hole.
			72.1-73.8m Major straw coloured, soft fracture infilling, possibly a carbonate and probably siderite as it does not readily react with dilute HCl.
			73.8-91.5m Minor (2-5%) soft black, quartz grains 0.5-2mm in dia, and angular to sub-rounded. Occur mostly as indiviual grains seldomly occur throughout groundmass as green clusters within pressure shadows of quartz crystals. Probably this is an altered chlorite mineral. Rare pyrite. Minor patches of pale green sericite alteration up to 5cm diameter.
			75.5-76.6m Fractured and limonite stained quartz vein. Minor 5-10mm grain aggregates at hematite probably after pyrite.
			91.5-111.5m Fractures cream, pale green sericite and clay infilled or as vughs, possibly due to solution of carbonate or washed out during drilling. Pyrite 1% as discrete blebs up to 10mm long or

geology

Project ELLIOTT BAY Prospect NORTH LEWIS Hole V12 DDH-5

From	To	Code	Description (mineralization in bold type)
			occuring in veins up to 15mm wide, and mostly sub-parallel to schistosity.
			93-93.1m Fractured quartz vein with dark oxidised chlorite seriate along fractures. Selvage, up to 2cm wide, developed consisting of pale green sericite and quartz.
			106.1-106.6m Major mineralized veins, commonly 2-5mm wide, with core veins to 10mm wide. Veins mostly sphalerite or pyrite with minor complex veins closely associated with quartz veins contain, pyrite, chalcopyrite, sphalerite, and possibly arsenopyrite. Pyrite veins are thicker and continuous, whereas sphalerite veins are wispy and often discontinuous.
			115.5-118m Extremely broken and sheared unit, quartz crystals highly flattened and fractured surfaces slickensided often with chlorite or talc coatings. Minor 5-15cm pyrite blebs developed locally within most highly sheared material. RQD 0%.
			116.75m Quartz-pyrite vein, 5cm wide, pyrite as less than 1mm fracture infill veinlets also minor chlorite along larger fractures.
			118-136.2m Strongly sericite-carbonate altered zone, major cream to pale pink developed as fracture infill and also in matrix replacing feldspar grains. Sericite occurs as a white to pale green alteration of the entire groundmass but appears to replace preferentially the mica minerals biotite/chloritye first. Overall this alteration caused grains boardering to become indistinct with an mattled texture. Locally strongly sheared.
			122.4-122.7m Minor alteration, mica minerals have been replaced by a fine black, platy mineral, probably hematite.
			126-136.2m Highly broken and sheared, minor slickensides with chlorite and or talc on surfaces. Shearing increases in

geology

Project ELLIOTT BAY Prospect NORTH LEWIS Hole V12 DDH-5 Page 7 of 8

From	To	Code	Description (mineralization in bold type)
			intensity towards lower contact.
			136.2m Lower contact very abrupt but broken.
136.2	163.65		Quartz-Feldspar-Brotite Porphyry.
			Mid grey to pale grey; fine to coarse grained; highly schistose; fresh, moderately broken with average RQD 35 - 40%; porphyritic textured quartz-feldspar-biolite porphyry.
			Rock consists generally of quartz crystals. 2-10% biotite flakes 10% within a finer grained groundmass of quartz and feldspar.
			Quartz crystals 2-10mm in diameter, commonly occur as rounded to sub-rounded grains, often slightly flattened and elongate parallel to schistosity. Within some alteration zones, the rims of the crystals are ragged on embayed suggesting replacement by alteration minerals.
			Feldspar crystals 5-10mm is diameter, occur as rounded to euhedral grains, most commonly as rounded to sub-rounded grains and generally poorly aligned elongate parallel to schistosity. Most feldspar grains have been highly fractured and chlorite infilled. Minor grains have 1-2mm white rims indicating some partial alteration possibly by quartz.
			Chlorite mostly occurs thin wispy discontinuous bands strongly defining to schistosity and imparting a fairly strong cleavage to the rock. Chlorite also, occurs, most commonly within alteration zones as irregular patches or blebs up to 5mm in diameter and poorly aligned with respect to schistosity. Most of the wispy chlorite in unaltered rock is probably re to grade biotite.
			Biotite occurs as 1-2mm flakes, often as aggregates to form wispy discontinuous layers up to 2cm long, and strongly aligned parallel to schistosity.
			Rare pyrite occurs at 0.5-2mm grains disseminated throughout.
			Schistosity surfaces dominantly chloritic with slickensides developed and plunges 20° clockwise, looking down hole, from down hole long axis of schistosity elipse, this plunge increases to near 90° towards the bottom of the hole.

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892214

geology

Project ELLIOTT BAY Prospect NORTH LEWIS Hole V12 DDH-5

From	To	Code	Description (mineralization in bold type)
			136.2-145.3m Highly broken unit with major sheared zones after friable. Minor carbonate-sericite alteration.
			142.3-142.35m Quartz vein.
			147.2-155.3m Strongly carbonate-sericite altered and slightly beached. Fine pale green sericite throughout matrix and carbonate infilled fractures and for 1-2mm laths of carbonate randomly orientated and developed in more intense carbonate veined zones. Major 1-2cm wide quartz-chlorite veins also developed with 1 per metre, and are cross cut by carbonate veinlets.
			EOH 163.65m

APPENDIX 4

PETROGRAPHIC DESCRIPTIONS

by R N England

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892216

1 Elliott Bay Project
1986-87 Season

ORDER No. E19330. PETROGRAPHIC NOTES ON 2 SAMPLES.

171974. Deformed, sericitised, Mn-mineralised rhyolitic(?) crystal-lithic tuff. VOYAGER 24 PROSPECT

0.1-2mm moderately strained roughly bipyramidal quartz phenocrysts form about 25% of the rock; most of the smaller quartz grains are fragmented. 0.1-(rarely)2mm blocky subhedra of orthoclase(10%) are in some cases weakly sericitised. The groundmass consists of 10-100 micron anhedra of orthoclase and quartz, with very common subparallel anastomosing trains of of 5-50 micron muscovite flakes whose preferred orientation defines a quite strong schistosity. Patchy variation in the abundance and texture of the groundmass, and in the relative proportions of orthoclase, quartz, and muscovite indicate that the rock consists partly of porphyritic rhyolite fragments up to several mm across, and partly of crystals derived from the same material. Clusters of 10-20 micron anatase replace 20-100 micron microphenocrysts of Fe-Ti oxide.

The black 1-10mm pockets and schlieren clearly visible in hand specimen are clusters and masses of 10-100 micron anhedra and rhombs of a MnIV hydroxide mineral which forms about 5% of the rock. This mineral and very minor 20-100 micron almost completely goethised pyrite cubes occur only in the groundmass.

The quite strong alteration has depleted Ca and Na and most Fe,Mg, and enriched K and Mn. One can never be sure with alteration like this, whether the original composition was rhyolite, rhyodacite, or even dacite in which all plagioclase has been made over to orthoclase by K enrichment.

180597. Metamorphosed fine-grained tonalite. LEWIS RIVER PROSPECT

Rare 1-2mm phenocrysts are tabular albitised plagioclase and fine prismatic pale olive green actinolitic hornblende. The rest of the rock consists mostly of abundant 0.2-0.4mm albitised plagioclase tablets, common interstitial micrographic intergrowths of orthoclase and quartz, and fairly minor interstitial 0.1-1mm clusters of 0.1-½mm pale olive green actinolitic hornblende. Feldspars are dusted with 10-20 micron prisms of the same hornblende. Very minor sphene forms 0.1mm anhedra, some enclosing small relics of ilmenite.

Minor but quite prominent ½-1mm myarolitic cavities contain euhedral quartz, plagioclase, and hornblende enclosed in coarse (½-1mm) anhedral dark red-brown strongly pleochroic allanite; the allanite is visible in hand specimen as very black equant grains. Lack of radiation damage indicates low U,Th, but there has clearly been hypothermal Ce-La-LREE-(probably Y) mineralisation accounting for perhaps 500ppm total REE.

The pale hornblende and albitisation of plagioclase are products of metamorphism at the threshhold of the amphibolite facies or perhaps its contact metamorphic equivalent.

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ORDER No. E19343. PETROGRAPHIC NOTES ON 2 SAMPLES FROM THE ALTERATION HALO OF A MASSIVE SULPHIDE POD

PENDERS PROSPECT

202924. Highly deformed altered felsic tuff.

Strained 0.1-2mm angular fragmented and rare bipyramidal quartz phenocrysts form about 10% of the rock; a few have been disrupted by the deformation. Angular 0.1-0.2mm albite fragments are much rarer. Rare 0.1mm Fe-Ti oxide microphenocrysts are altered to clusters of anatase.

The groundmass consists of 10-50 micron quartz anhedra, 0.02-(rarely)0.5mm flakes of whitemica(a term used here to include muscovite, paragonite, pyrophyllite, and even talc) and rare 10-50 micron chlorite flakes and 0.1-0.5mm anhedra and rhombs of dolomite(?magnesite). At least two episodes of deformation have produced 0.1-2mm streaky layers of granoblastic quartz with minor chlorite, and of whitemica flakes with a strong layer-parallel preferred orientation. This foliation forms the axial plane to kinks in an older whitemica foliation. Minor small rootless isoclinal folds, in the early foliation and an associated layering, are poorly preserved.

In minor 10mm-thick very quartz-fragment rich lenses(probably of sedimentary origin) quartz is highly deformed, with subgrain development and fine granoblastic recrystallisation. This material contains minor streaky layers of chlorite, clusters of 0.1-1mm dolomite(?magnesite) anhedra, and rare 0.2-0.4mm subhedral cubes of pyrite.

The whitemica is almost certainly not pyrophyllite(which is not compatible with albite). Muscovite(phengite), paragonite, and talc are not distinguishable optically, and all are possible in this kind of alteration. I have been tricked before into mistaking very friable muscovite(like this material) for talc. One needs XRD(in conjuction with petrography) to characterise this alteration properly. It would also solve the dolomite-magnesite dilemma. Analabs in Perth are fairly cheap.

Regional metamorphism appears to have been in the low greenschist facies.

202925. Highly deformed altered felsic tuff.

This rock is fairly similar to 202925, but quartz-rich lenses are absent and chlorite is much rarer. Streaky whitemica layers are rarer and not thicker than 0.2mm. Kinked relics of the older foliation are rare. The groundmass is dominated by 10-50 micron granoblastic quartz anhedra, minor whitemica flakes(parallel to the layering), minor anhedra and rhombs of dolomite(?magnesite), and extremely rare 10-20 micron octahedra of magnetite. The last two are partly limonitised.

This sample presents the same problems of identifying the whitemica-like phase and the carbonate as does 202924.

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ORDER No. E00265. PETROGRAPHIC NOTES ON 3 SAMPLES FROM THE ELLIOTT BAY AREA, TASMANIA

V12-5/106.2m. Metamorphosed altered rhyolitic tuff with pyrite-chalcopyrite-sphalerite schlieren. North Lewis Prospect

The host rock here is a lithic/crystal tuff. 0.5-5mm generally fragmented bipyramidal quartz phenocrysts form about 10% of it, and 1-3mm heavily sericitised K-feldspar about 2%. They lie in a goundmass of altered to 10-50 micron anhedra of quartz and very minor ?ankerite, with flakes of sericite and minor metamorphic biotite, and a tiny trace of 10-micron ilmenite. Muscovite and biotite tend to gather into schlieren parallel to a weak to moderate mica foliation, which wrap around quite common deformed relics of 10mm rhyolite lapilli. The texture is one of rhyolitic rock and crystal fragments in a moderately micaceous matrix. Rare slightly lenticular 1mm clots of randomly oriented 30-100 micron flakes and anhedra of biotite, and rare small grains of ilmenite may once have been ferromagnesian phenocrysts.

The mineral assemblage indicates biotite-grade regional metamorphism. Alteration which leached Na and possibly Ca was probably associated with the mineralisation.

Sulphides occur in 1 to 5mm-thick schlieren, with 10-300 micron anhedra of siderite(which also forms late cross-cutting veinlets), 30-100 micron flakes of muscovite and minor chlorite, and minor 0.1-0.2mm anhedral quartz; the preferred orientation of sheet silicates here is not nearly so evident as that of muscovite in the host rock. Pyrite, the commonest sulphide, forms irregular masses up to several mm across and minor 20-micron to 0.5mm veinlets, roughly parallel to the cleavage; much of it may be a retrograde alteration product of pyrrhotite. Slightly less common 10-micron to 1mm anhedra of red-brown sphalerite have minor 20-50 micron inclusions of pyrrhotite, much less common chalcopyrite, and rare bismuthinite(?). Chalcopyrite forms clusters of 10-200 micron anhedra. Bismuthinite(?), perhaps 0.02% of the schlieren, occurs separately as 2-250 micron anhedra and rare blades, almost invariably with 1-50 micron inclusions of bismuth.

Minor brecciation and microfaulting near sulphides and carbonate may have occurred during the deformation as a result of ductility contrast between these and the enclosing rock. In other words, the schlieren may be pre-metamorphic veins rotated into subparallelism with the foliation.

V24-3, 124.5m. Rhyolitic lithic tuff. Voyager 24 Prospect

Fragments of 1-10mm subangular altered rhyolite and subordinate fragmented and subhedral 0.1-2mm crystals of quartz and orthoclase are separated by moderately abundant matrix of altered fine ash, consisting of 10-50 micron anhedra of quartz and orthoclase, and 10-20 micron muscovite flakes; this material has a suggestion of relict eutaxitic texture. The rhyolite

fragments have groundmasses without relict eutaxitic textures, richer in K-feldspar and much poorer in muscovite than the matrix. Minor clusters of 10-400 micron anhedral siderite are disseminated through fragments and matrix. Muscovite has a quite strong preferred orientation, and is gathered in whisps parallel to it.

10-20 micron pyrite cubes and much rarer 2-20 micron chalcopyrite anhedra tend to concentrate in the muscovite whisps. Rare 2mm clusters of 10-100 micron yellow sphalerite and smaller less common galena and chalcopyrite occur in the ?matrix, apparently unconnected with any veins. Even this sample contains a few hundred ppm of Zn and Cu.

Moderately common 0.2 to 2mm-thick veinlets of 0.1-1mm quartz anhedra cut the foliation at large angles. High strain in relics of coxcomb textures in all the quartz grains suggest that they predate the foliation. Rare clusters in the veins of thin 0.3mm tablets of ilmenite(some altered to anatase) indicate hydrothermal mobility of Ti. The sulphides apparently predate these veins, and may have been introduced when fluids passed through poorly consolidated, very permeable and reactive sediment. Perhaps disseminated epithermal mineralisation in lapilli tuffs is most likely at this stage, e.g. at Drake, N.S.W., and Wau, PNG. In parts of the Drake deposit, what started out probably as a dacite is converted to rhyolite as hydrothermal fluids make over plagioclase to adularia! For this reason it is not wise to take the naming of altered acid volcanic rocks very seriously. Alteration here has apparently leached out Na and possibly Ca.

V24-3, 125.4m. Altered rhyolitic lithic tuff with sphalerite-galena-quartz-albite-orthoclase schlieren. VOYAGER 24 PROSPECT

Unfortunately I get my Econ. Geol. by sea mail, and haven't yet seen Ross Large's paper.

Only one large section was necessary.

The host rock is similar to the sample from 124.5m. Mineralisation occurs almost entirely in coarse-grained schlieren at least 20mm thick lying roughly parallel to the foliation. These consist mainly of 0.2-5mm quartz and honey-brown sphalerite anhedra. Quartz is highly strained with a tendency to form sutured boundaries and rare recrystallised granoblastic aggregates, but sphalerite is not strained enough to show anisotropy in transmitted or reflected light. Minor gangue minerals in the schlieren are 0.1-0.5mm albite, siderite, and K-feldspar; these are generally anhedral except for some albite in contact with sulphides, which forms euhedral tablets. Galena, about 5% of the schlieren, occurs as 1-micron to 4mm anhedra closely associated with sphalerite and albite. Spectacular curved patterns of the (111) polishing pits in the coarser galena crystals indicate high strain in their crystal lattices. 10-100 micron anhedral chalcopyrite is quite common as inclusions in the coarsest sphalerite(so is galena) but is very rare(though up to 0.5mm) elsewhere. Traces of pyrite form dissseminated 0.2mm cubes and anhedra, and tiny veinlets and anhedra included in

sphalerite.

A single 20-micron anhedral grain of gold occurs in contact with two small galena anhedra all included in a 0.2mm siderite grain near coarse sphalerite. The overall content of 17.5ppm suggests that gold may be more concentrated elsewhere(near the centre of the schlieren?) or generally form coarser grains than this.

High strain in quartz and galena is a pretty clear indication the the schlieren predate the deformation, and suggests that they may have been veins rotated into near-parallelism with the foliation.

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ORDER No. E00263. PETROGRAPHIC NOTES ON A SAMPLE OF METAMORPHOSED PORPHYRITIC ACID VOLCANIC ROCK.

Mt Osmund West

216118. Metamorphosed rhyodacite crystal-lithic tuff.

Moderately common 1-2mm blocky plagioclase phenocrysts and smaller angular fragments of them are altered to albite dusted with 10-micron sericite flakes and 10-30 micron clinozoisite anhedra. Minor 1-2mm blocky orthoclase phenocrysts are partly replaced by quartz and sericite. Moderately common 1-2mm bipyramidal quartz phenocrysts and angular fragments of them have been strained and in some places disrupted by deformation. Rare 0.2-1mm biotite phenocrysts have been heavily altered to quartz and vermiculite. Fairly prominent 0.1-0.4mm microphenocrysts of magnetite are altered completely to very fine sphene, or more rarely clusters of anatase. Much less common 0.1-0.4mm ilmenite tablets are altered to masses of anatase. The groundmass is altered mainly to 10-20 micron anhedra of quartz and flakes of sericite, with very minor clusters of fine clinozoisite. The sericite concentrates in subparallel whispy layers up to a mm thick and several mm long which envelop the phenocrysts and fairly common 1-5mm lenticular rhyodacite fragments. Minor similar anastomosing 0.1mm-thick layers of vermiculised, lightly limonitised biotite are resposible for the "dark partings" in the hand specimen. A layer-parallel mica preferred orientation defines a strong foliation. Rare 0.2mm roughly cube-shaped voids may once have contained disseminated pyrite.

The relics of igneous magnetite indicate an I-type composition. The alteration has produced a peraluminous composition, probably by leaching of alkalis and Ca. Perhaps this was accomplished by fairly acid fluids associated with sea-floor or epithermal sulphide mineralisation.

Biotite-grade metamorphism was accompanied by quite strong shearing, but not mylonitisation.

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APPENDIX 5

CHAPTER 5 OF J R LEAS BSc (Hons) THESIS - WART HILL

CHAPTER 5

MINERALIZATION

Several styles of mineralization occur in the vicinity of Wart Hill (V19), the most significant being two small lenses of massive sulphide, rich in Pb-Zn-Cu-Ag, (Fig. 5.1). Other styles include vein style galena, sphalerite, arsenopyrite along the Copper Creek Fault (desiqnated V31 & V33) and disseminated pyrite, sphalerite, galena, one kilometre south of Wart Hill (V29 & V29W). Within and adjacent to the porphyries in the pyroclastics minor vein style and disseminated galena, sphalerite, carbonate mineralization occurs.

Only the sulphide lenses were studied in detail although samples of the mineralization from V29, V29W, V31 & V33 were obtained from R. Large (pers comm.) and used in the sulphur isotope study.

5.1 Massive Sulphide Mineralization

Lens A (Fig. 5.2), the more northerly body located at 13300N and 10084E is exposed by a 50cm deep costean (Fig. 5.3). The lens strikes roughly 330° and is 10m in length, 2m wide and is composed of a siliceous porous gossan over brown to dark grey weathered sulphides. Banding caused by weathering is apparent, (Fig. 5.4), and also a mineralogical

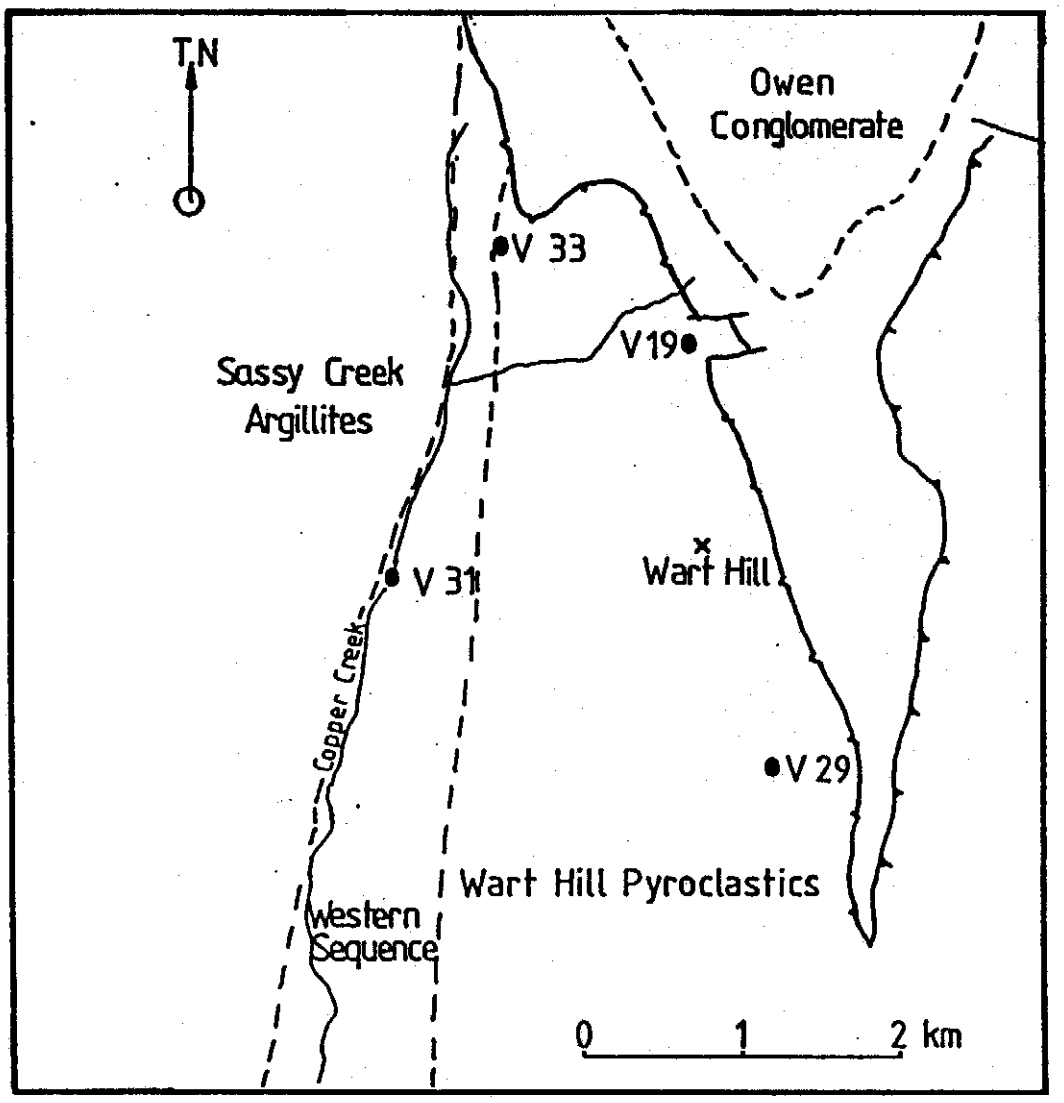

Fig. 5.1 Location of mineralization in the Wart Hill area

5 cm

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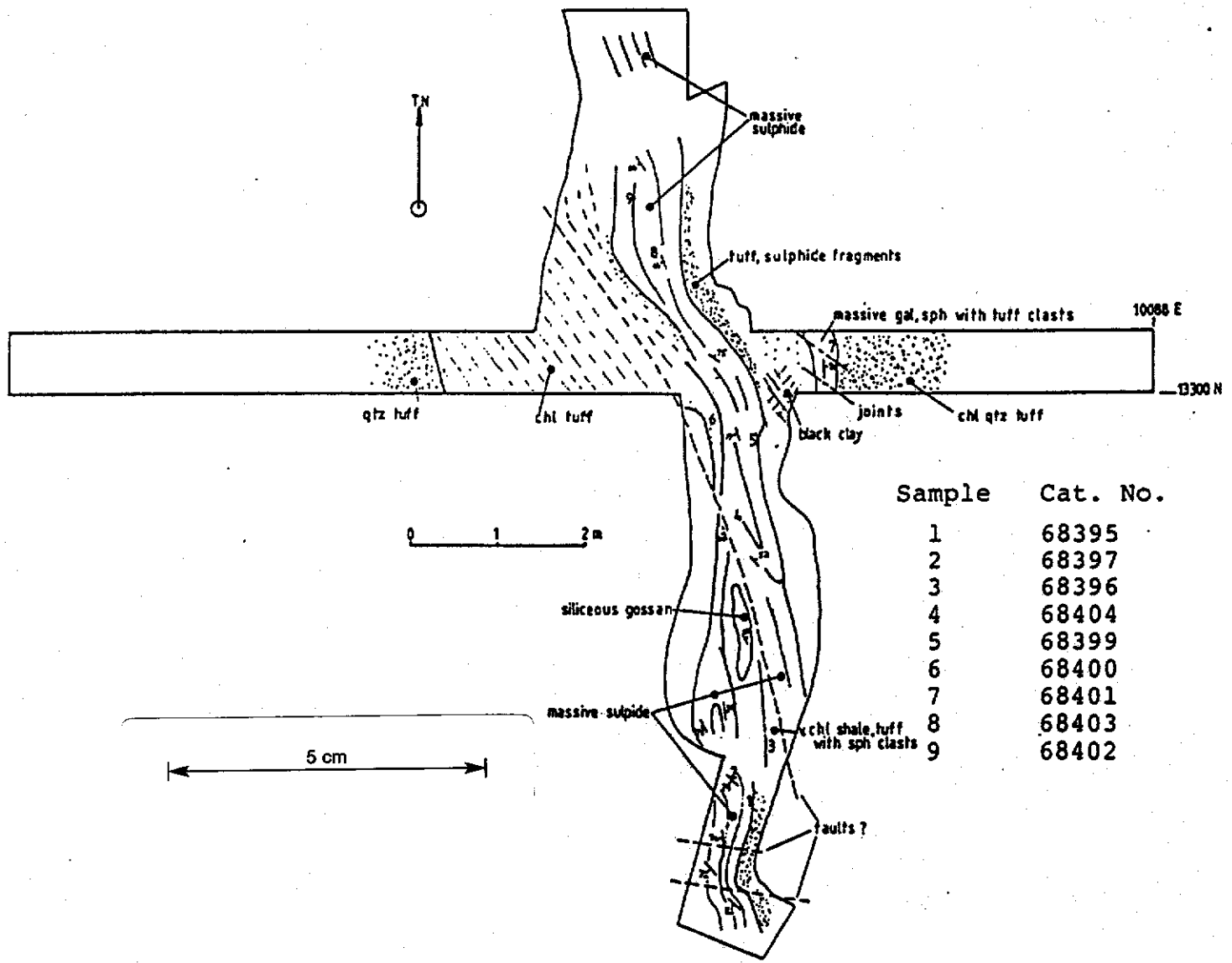

Sample	Cat. No.
1	68395
2	68397
3	68396
4	68404
5	68399
6	68400
7	68401
8	68403
9	68402

Fig. 5.2 Lens A

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Fig. 5.3 Exposure of Lens A



Fig. 5.4 Banding of massive sulphides in Lens A

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distributed throughout is concentrated in thin layers up to 5cm apart.

The lens is contained in a sequence of dark chloritic strongly cleaved shales, clay and tuffs. The shaley tuffs to the west are well cleaved and contain fine grained disseminated pyrite. On the eastern margin fine grained, more competent chloritic crystal tuffs are present with disseminated sphalerite, galena and pyrite fragments. Small horizons of interbedded shales and massive sulphides occur through the lens but are concentrated on the eastern margin. The strong chloritic alteration is very localised to within several metres of the mineralization. Outside this area altered tuffs occur, typical of the Wart Hill Pyroclastics.

The strong regional cleavage runs through the mineralization and is parallel to the mineralogical banding. Bedding is indicated by the weathering induced banding and compositional layering. The latter may relate to cleavage development, however. Several isoclinal folds are suggested from bedding readings and outcrop appearance. In cut hand specimen relict bedding is suggested by highly irregular cavities (Fig. 5.5). Minor faulting cuts the lens indicated by the truncation of compositional layering and is marked by linear quartz veining. The lack of obvious deformation in the poorly exposed surrounding rocks and the irregular bedding as indicated by cavities suggests the folding was caused by primary slumping.

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Fig. 5.5 Cavities in massive sulphide indicating bedding

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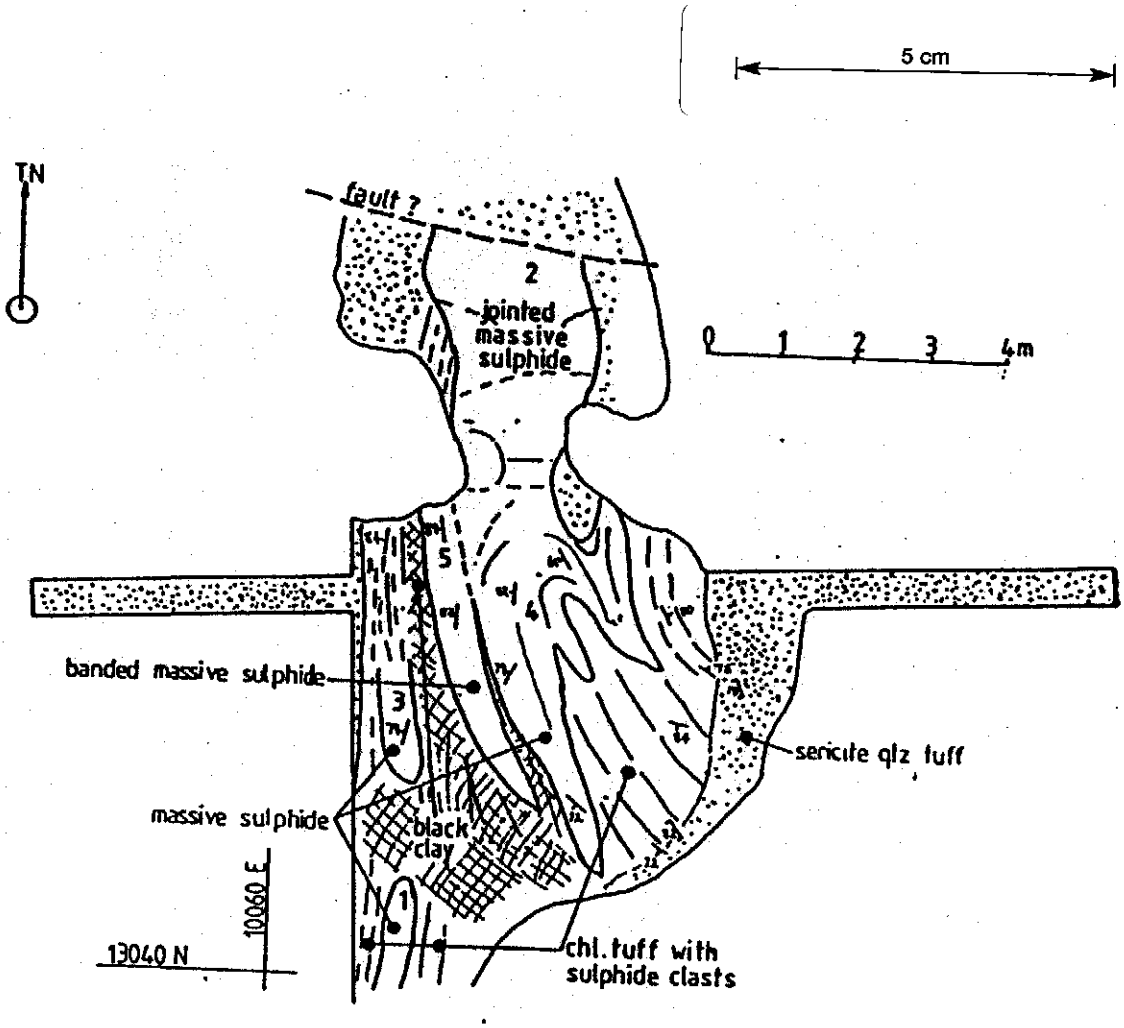

Fig. 5.6 Lens B

Sample	Cat No.
1	68391
2	68390
3	68392
4	68394
5	68393

Lens B (Fig. 5.6) is located at 13045N and 10060E approximately along strike from lens A. It is 10m long with a width of 2-3m and has a faulted northern end but interfingers with the enclosing rocks to the south. The mineralogy is similar to lens A apart from the presence of baryte clasts up to 2cm in diameter and the sphalerite's being paler in colour.

Localized strongly chloritic shales, clays and tuffs surround the lens with small massive sulphide pods and disseminated mineralization. The eastern edge of the body merges with the chloritic shale and tuff.

Structurally lens B has the same features as lens A being strongly cleaved and irregularly bedded. The southern half of the lens appears to have been folded isoclinally into a z vergence, plunging variably south, (Fig. 5.7). The interfingering of the mineralization and tuff to the east may have been caused by the influence of a more E-W cleavage. The irregular structure again suggests slump folding.

5.2 Mineralogy

Polished thin section studies reveal that the massive sulphides consist dominantly of sphalerite, galena and pyrite with minor baryte, chalcopyrite, tetrahedrite and accessory arsenopyrite, chalcocite and marcasite. Gangue minerals include quartz, chlorite, cerussite and goethite.

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Fig. 5.7 Fold in massive sulphides of lens B

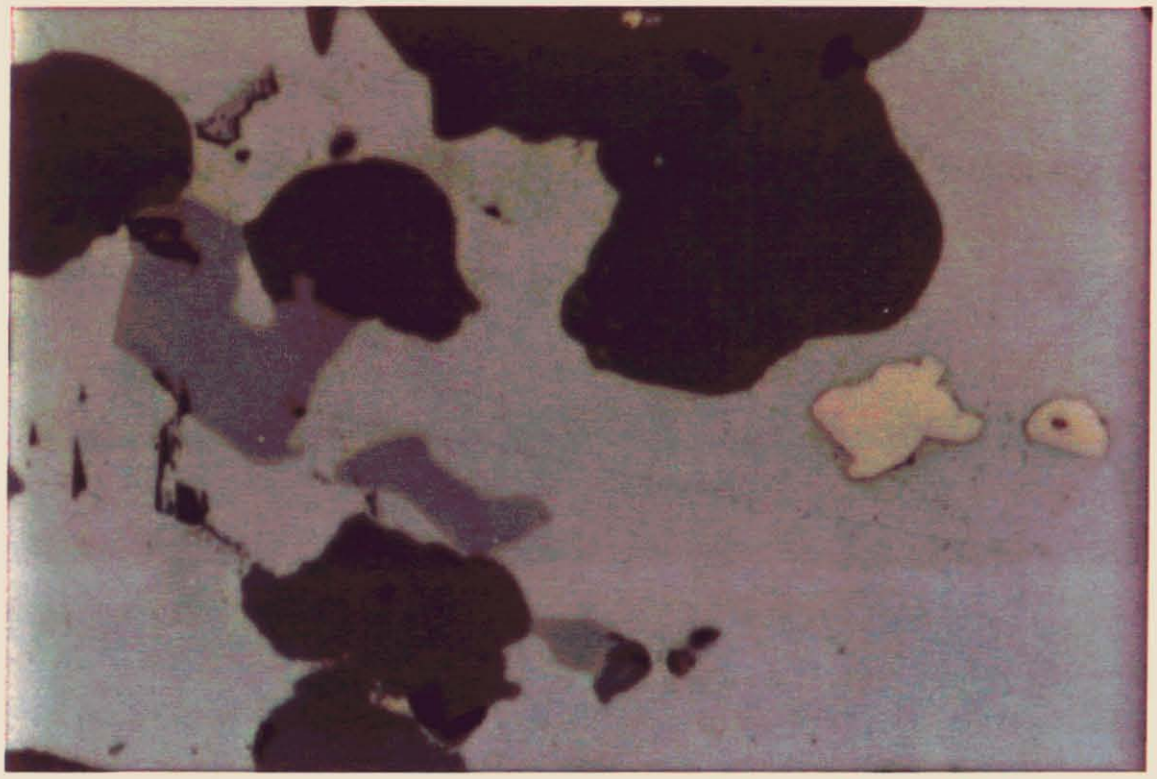

Fig. 5.8 Sphalerite (dark grey) in galena (light grey), tetrahedrite (medium grey) and pyrite (yellow). sample no. 68391 Field of view 1.31 x 2.00 mm

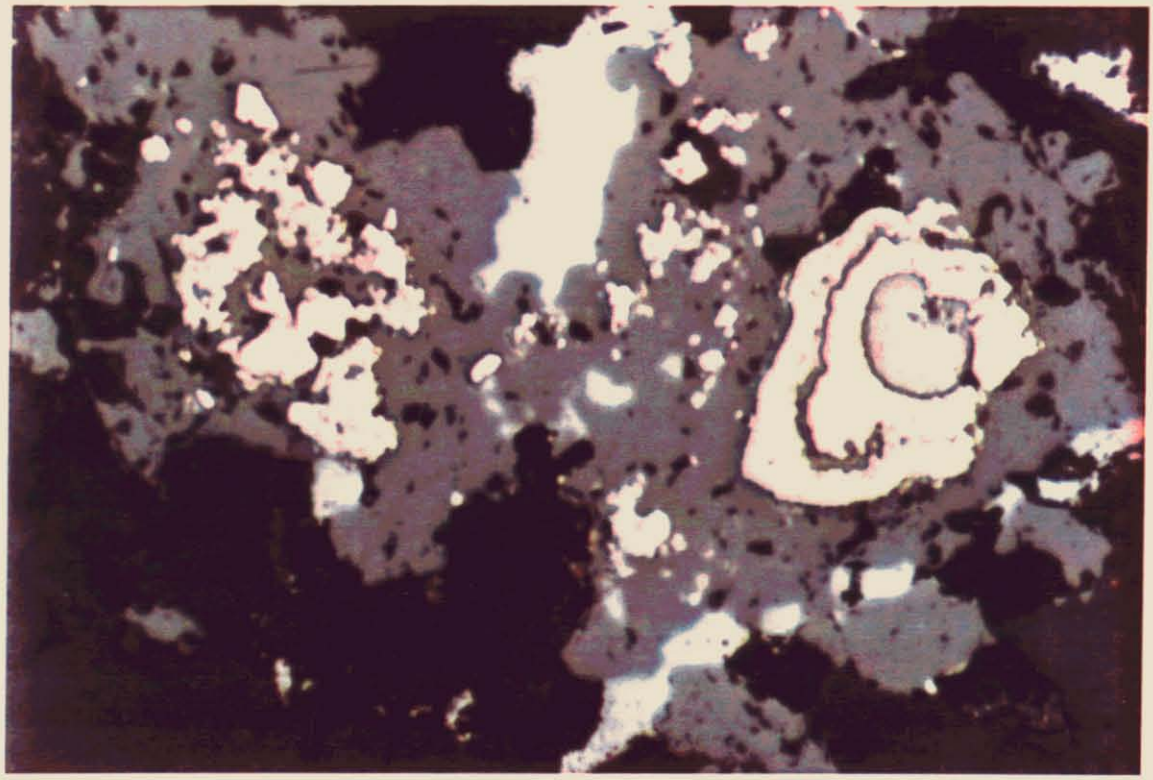

Fig. 5.9 Colloform pyrite with intergrown galena sample no. 68392 Field of view 0.65 x 0.98 mm

anhedral (Fig. 5.8). In lens A it has a red-brown colouration while in lens B it is pale brown in transmitted light. Craig and Vaughan (1981) state that sphalerite becomes darker with an increased iron content. Although anhedral the sphalerite often has a circular form and growth zoning is apparent in transmitted light.

Pyrite occurs in both lenses, in several forms, often concentrated in bands. The banding is irregular and indicates deformation on a small scale. Framboidal pyrite is visible as minute circular agglomerates contained in sphalerite crystals. Colloform pyrite, in places zoned with galena, has an irregular shape and is commonly fractured, (Fig. 5.9). Euhedral pyrite, up to several millimetres in diameter, is concentrated in bands. Growth zoning is indicated by trapped inclusions. A birds eye texture, (which is an intergrowth of pyrite and marcasite), is occasionally visible, and is a characteristic product of the alteration of pyrrhotite.

Galena occurs as anhedral intergranular aggregates often with a distinctive triangular cleavage. In the galena rich bands, sphalerite is completely enclosed, indicating that galena formed later. Tetrahedrite is present as mutually interpenetrating grains with galena. It is more common in lens B and being a silver carrying mineral indicates a higher silver content in this lens.

Chalcopyrite, a minor component, is concentrated as with pyrite into bands. The higher volume in lens A indicates a greater copper content. It forms inter-granular anhedral masses between sphalerite grains and also very small grains and rods within sphalerite grains (Fig. 5.10). This texture, known as chalcopyrite disease, is commonly thought to be an exsolution texture. As shown by Wiggins and Craig (1980), however, chalcopyrite will not dissolve in sphalerite in sufficient amounts unless temperature of formation exceeds 500°C. Hence the texture may result from syngenetic crystallization or subsequent reaction of the sphalerite with copper rich fluids (Barton, 1978).

Baryte was observed only in lens B and appears in thin section as altered and anhedral masses. Irregular inclusions suggest that it grew around surrounding minerals. Arsenopyrite is very rare although euhedral crystals were observed in samples from both lenses, (Fig. 5.11). It encloses framboidal pyrite and is enclosed by quartz elsewhere. Marcasite was noted only in one sample as pale blue anhedral crystals intergrown with galena.

Quartz is the principal gangue and is often in bands associated with pyrite and parallel to the sulphide banding. It has sutured boundaries and is commonly fractured, with undulose extinction indicating deformation and recrystallization. Cerussite occurs as laths replacing galena, concentrated in more weathered samples. Chlorite

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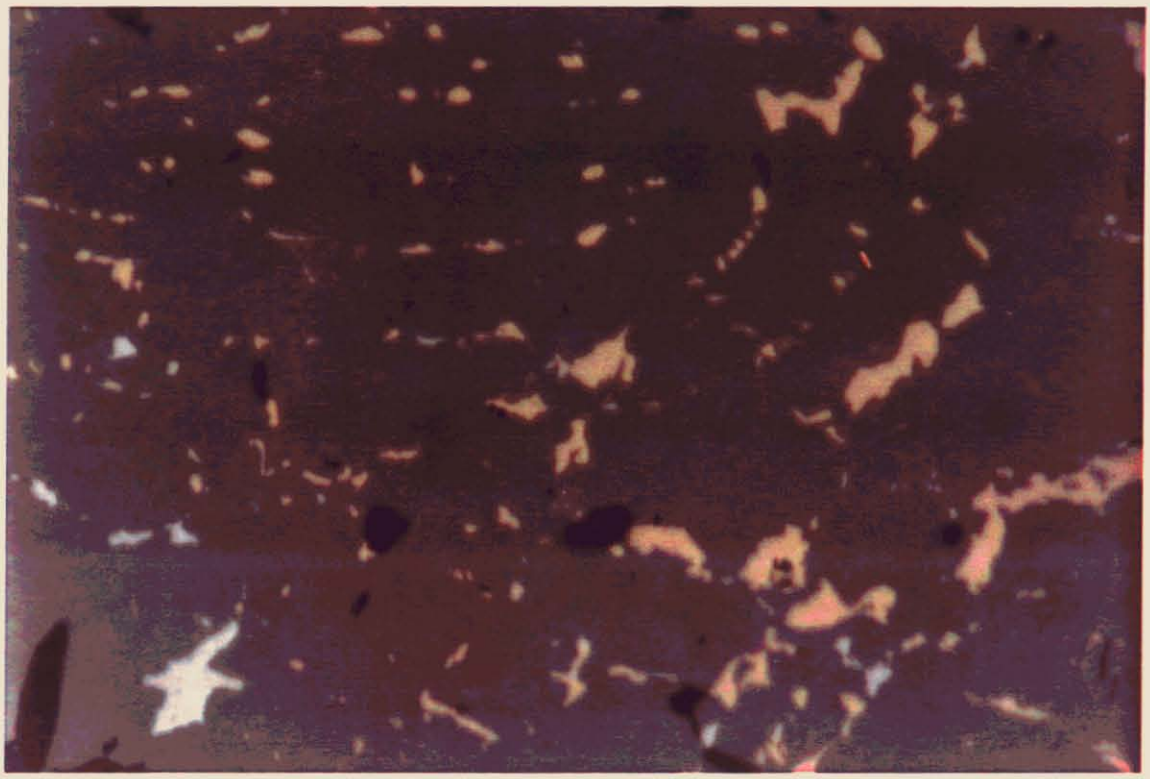

Fig. 5.10 Chalcopyrite disease. Sphalerite with minor chalcopyrite sample no. 68396
Field of view 0.32 x 0.49 mm

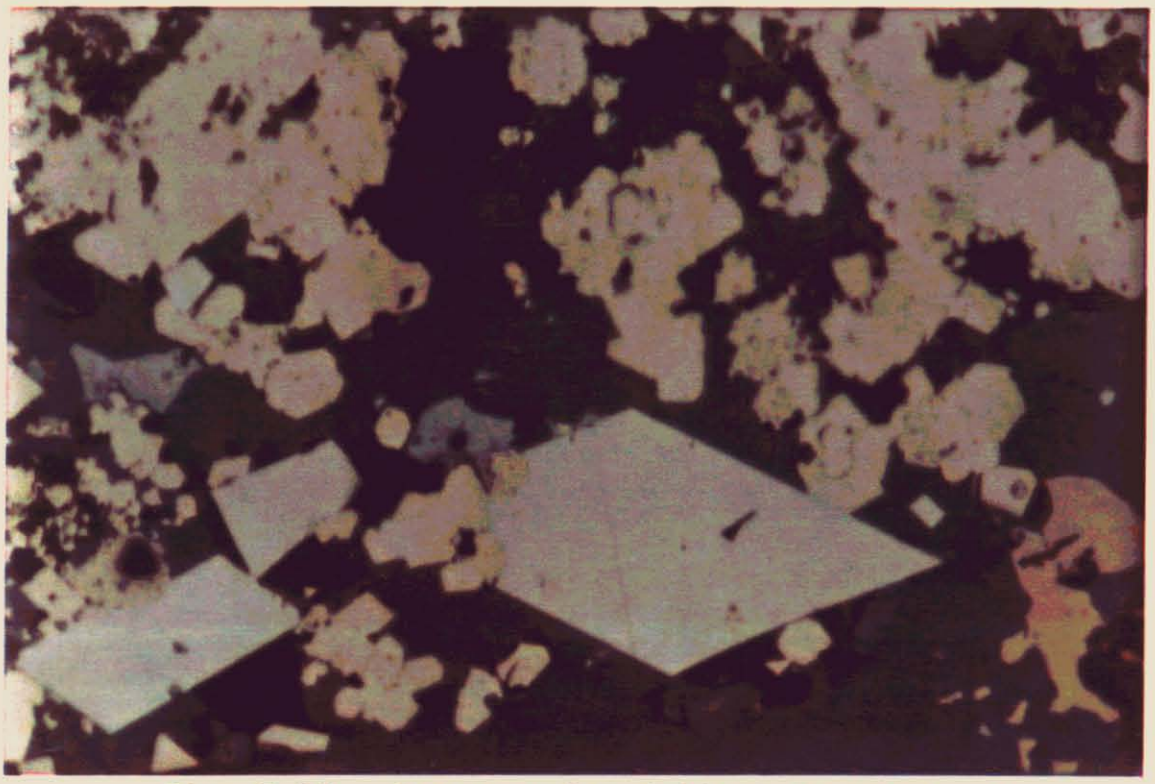

Fig. 5.11 Arsenopyrite (white) in sphalerite (grey). Framboidal and euhedral pyrite (light yellow) with minor chalcopyrite (yellow). sample no. 68403.
Field of view 0.33 x 0.49 mm

country rocks. The immediately surrounding rocks are composed almost totally of chlorite with minor fragments of mineralization.

Deformation of the lenses is indicated by the fractured pyrite, curved cleavages in galena and by the non-linear twinning planes of etched sphalerite crystals (Figs. 5.12 and 5.13). The triple junctions between sphalerite crystals have dihedral angles approaching 120° indicating partial annealing. The large porphyroblastic pyrite crystals could have also resulted from recrystallization. It is likely then, that the mineralization was deformed and metamorphosed.

From thin section study a paragenetic sequence of formation can be postulated;

(i) framboidal pyrite was formed first possibly as a result of rapid cooling.

(ii) pyrrhotite and colloform pyrite formed with changes in the physico-chemical environment producing bands of galena.

(iii) sphalerite crystallized in open spaces as suggested by growth zoning, and enclosed the earlier pyrite phases. Minor arsenopyrite crystallized contemporaneously.

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Fig. 5.12 Fractured pyrite sample no. 68401.
Field of view 1.32 x 2.00 mm

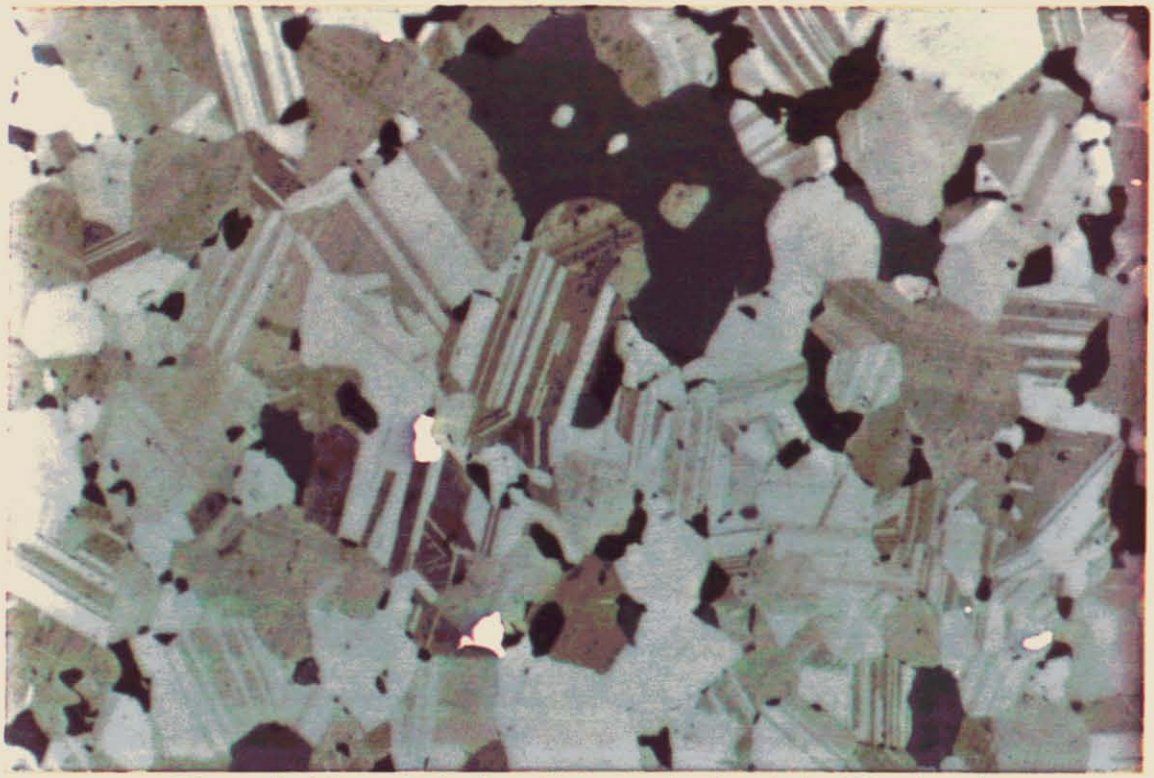

Fig. 5.13 Sphalerite etched with HI showing twinning sample no. 68396.
Field of view 0.65 x 0.98 mm

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(v) quartz crystallised after arsenopyrite, possibly before baryte and enclosed existing minerals.

(vi) metamorphism and deformation resulted in partial recrystallization of the earlier pyrite into larger euhedral crystals, pyrrhotite was altered to pyrite and marcasite.

(vii) colloform pyrite was fractured and the more ductile minerals such as sphalerite and galena were deformed, possibly enhancing the mineralogical banding.

(viii) subsequent weathering produced cerussite and goethite.

Several differences exist between the two lenses. Lens A compared with lens B has;

(i) darker sphalerite indicating a higher iron content,

(ii) less tetrahedrite, hence less silver,

(iii) less baryte,

(iv) more chalcopyrite i.e. a higher copper content.

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Analyses by Geopeko of the two lenses, (Fig. 5.14), support these observations and also indicate a higher Pb/Zn and gold content in lens B. The lack of a systematic zoning of metals across the lenses supports a slump origin. Average metal contents, using a minimum cut-off value of Pb or Zn greater than 10%, are;

	Zn	Pb	Ag	Cu	Au	Fe
Lens A	21.1%	9.9%	173ppm	0.3%	0.65ppm	1.3%
Lens B	21.9%	13.9%	680ppm	0.2%	0.84ppm	0.50%

The significance of these chemical differences will be discussed in the following section.

5.3 Origin of Mineralization

Before an attempt is made to deduce the genesis of the sulphide lenses the characteristics of volcanogenic massive sulphides (VMS) need to be considered. VMS deposits can be generally described as stratiform, lenticular bodies of massive pyrite mineralization containing variable amounts of sphalerite, galena and chalcopyrite in submarine rock sequences. They are often overlain by thinly bedded siliceous and iron rich sedimentary rocks and are commonly underlain by extensive zones of altered sulphide impregnated volcanics (Hutchinson, 1973). This chloritic and sericitic footwall (or stringer) zone is widely considered to be the conduit through which the mineralizing fluids passed.

On a larger scale mineralization appears to be

Interval (m)	Cu	Pb	Zn	Ag	Au
10074-75	50	6600	1.87%	X	0.017
10075-76	50	900	2825	X	X
10076-77	25	4650	7625	X	0.008
10077-78	50	1.14%	1.07%	2.5	X
10078-79	125	7600	8225	S	0.025
10079-80	50	1.36%	9900	10	0.075
10080-81	650	12.59%	15.89%	225	1.02
10081-82	175	7.75%	6.9%	20	0.067
10082-83	2900	13.95%	27.7%	175	0.733
10083-84	2650	12.72%	32.7%	220	0.658
10084-85	775	4.13%	6.53%	50	0.133
10085-86	25	6000	1700	X	X
10086-87	150	1.73%	1.3%	S	0.008
10087-88	800	2.16%	3.05%	22.5	0.067

Grid Location	Cu	Pb%	Zn%	Ag	Au	Fe	Be	Mn	As	Cd	Mo	Bi
13 300N, 10 073E	3125	11·92	11·05	130	·064	8600	30	505	75	420	2·5	26
" "	3725	11·46	14·71	112	·096	7600	20	635	77	460	0·5	21
" "	3650	6·3	8·72	87·5	·048	1·15	10	680	140	310	3·0	77
" "	2500	3·37	13·6	47·5	·080	4500	10	280	85	465	1·5	20
" "	1·33%	7·66	14·24	227	·080	1·950	X	740	150	535	1·0	260
13 297N, 10 083E	2125	8·43	25·7	130	·664	2100	10	50	370	715	5·5	4·0
13 296N, "	175	2100	·84	12·5	·816	1·75	60	25	700	18	0·5	1·0
" "	200	1·0	·595	35·5	·212	17·0	40	1650	480	12·5	3·0	X
13 296N, 10 083E	1500	6300	17·0	76·5	·768	3100	20	65	410	495	2·5	X
" "	475	16·16	38·74	390	2·3	4·86	30	150	900	1450	12	X

Fig. 5.14 a) Metal concentrations in lens A

Interval (m) (Eastings)	Cu	Pb	Zn	Ag	FeZ	Au ppm	As	Ba
10056-57	90	1950	160	9	0.56	.075	8	540
10057-58	75	2450	630	4.5	0.71	.038	10	730
10058-59	20	950	120	1.5	0.61	X	3	710
10059-60	30	1.08%	1550	22	0.46	.05	9	710
10060-61	80	1.66%	1.07%	58	0.67	0.1	17	700
10061-62	1750	15.5%	20.3%	770	0.3	0.9	200	4450
10062-63	2800	17.3%	25.4%	990	0.43	1.15	160	830
10063-64	1500	9.01%	20.0%	279	0.27	0.48	130	660
10064-65	195	2.25%	3.36%	92	0.99	0.21	46	860
10065-66	45	3550	1700	8.0	0.65	0.02	10	740
10066-67	195	3950	2100	16.0	1.25	.038	16	660
10067-68	10	555	175	3.0	0.47	.012	3	400
10068-69	10	715	315	3.5	0.46	.025	2	420
10069-70	30	860	1150	2.0	0.61	.012	4	270

intersections, which provide the plumbing systems for the circulation of sea water. The mineralized horizons often indicate a break or change in volcanic activity (e.g. from rhyolitic to andesitic) and generally volcanism appears to be in a waning stage (Naschwitz, 1985). Three major types of VMS deposits have been identified by Hutchinson, (1973).

(i) pyrite-sphalerite-chalcopyrite in differentiated mafic to felsic volcanics.

(ii) pyrite-sphalerite-galena-chalcopyrite occurring in more felsic calc alkaline volcanics and epiclastics.

(iii) pyrite-chalcopyrite in ophiolitic volcanics.

Variations occur within each of these such as metal zonation and the spatial change of sulphide form from disseminated stringer, to massive bedded mineralization. The Japanese Kuroko deposits, for example, show a metal zonation from bottom to top of; a pyrite chalcopyrite stringer zone, a chalcopyrite rich yellow ore and a sphalerite, galena, chalcopyrite, pyrite, baryte stratiform black ore, (Lambert and Sato, 1974).

This zonation results in a copper rich base often with gold and a lead-zinc rich top. Lead and tetrahedrite (and hence silver) are concentrated towards the top of the lode

monomineralic baryte ore. This zonation can be explained by changes in pH, oxygen fugacity, temperature and chloride concentration as the hydrothermal solutions mix with seawater at the top of the volcanic pile (Large, 1979).

Large, (1977), proposed a second classification for deposits based on the relationship of the mineralization to the footwall alteration zone;

(i) Proximal - ore directly overlying the alteration zone.

(ii) Distal - ore has no distinct alteration pipe and hence must lie some distance from the hydrothermal solution outlet.

The mineralization in this study obviously has many of the characteristics of distally deposited VMS being stratabound, lenticular bodies contained in rhyolitic tuffs with associated porphyries. The Zn-Pb-Cu-Ag type mineralization is often associated with felsic volcanics along with porphyritic subvolcanic intrusions, breccias and pyroclastics, (Hutchinson, 1973). The explosive volcanism which is the probable source of these rock types often occurred in domical centres that were briefly and locally subaerial (Hutchinson, 1973) which is consistent with the shallow marine nature of the epiclastics, (see Chapter 4). The brecciation of footwall rocks indicates proximity to the

indicated by the lack of a copper rich, extensively altered stringer zone, and overlying baryte mineralization. The mineralogy resembles most closely the black ore of the Kuroko type deposits.

The differences between the two lenses suggest that lens B is higher in the metal zonation sequence having less copper, and more lead, silver and baryte than lens A. The iron content of sphalerite decreases as temperature decreases and oxygen fugacity increases, (Scott, 1983). These changes would be expected towards the top of the sequence, and as the sphalerite in lens B has a lower iron content this supports the relative paragenesis suggested. Both being distal deposits and apparently on the same stratigraphic level several possible mechanisms exist for their emplacement;

(i) deposition away from the feeder channel related to the density of the mineralizing fluid.

(ii) slump or turbidity current transport of unconsolidated sulphides down the volcanic palaeoslope.

(iii) transport of coherent sulphides during tectonic movement.

(iv) folding or other deformation such as boudinage

The nature of the lenses, having slump folds but lacking other sedimentary features such as graded bedding and soft sediment flame structures as present in the Hokuroko district of Japan (Eldridge et al, 1983) suggests that the lenses were semi-consolidated when deposited. Hence, crystallization away from the feeder zone and turbidity current transport appear unlikely means of formation. The limited extent but significant degree of mineralization in the surrounding tuffs and the lack of sharply defined boundaries precludes transport of coherent sulphide bodies.

A tectonic separation of the mineralization from the stringer zone is possible. The structural evaluation (Chapter 3) indicated that oblique movement of the Osmond Fault could have produced bedding-slip, possibly resulting in boudinage. Alternatively, the lenses could be enclosed in the hinges of isoclinal folds which although not recognised in this area were noted by Martin (1974) in the volcanics of the D'Aguilar Range. The lack of evidence in the surrounding rocks for either of these two means of formation suggests an origin from deformation alone is unlikely.

Slumping down a volcanic palaeoslope appears to be the most probable origin for the massive sulphide lenses. It is possible, of course, that a combination of the above methods

The facing of the lenses is difficult to ascertain, although the greater extent of chloritic shales and clays to the west and the more abrupt metal cut offs to the east suggests an east facing. Overturning has been observed in the Kuroko deposits as a result of slumping which according to Eldridge et al (1983) can have several origins including the intrusion of dacitic, porphyritic domes. As several porphyritic intrusive bodies occur in the area these may have provided the means for slumping and subsequent overturning.

The stringer zone, if nearby, should be readily identifiable. The alteration centred on Wart Hill is a convenient location for the source and the agglomerate around the Wart may indicate the brecciated zone often associated with exhalation. The lack of mineralization, however, apart from low concentrations of disseminated pyrite prevent this being identified as the feeder zone unless it is the basal section of an eroded column. It is worth noting that a stratiform gold deposit, located stratigraphically above and to the south west of Wart Hill in a volcaniclastic horizon could represent the depositional site for eroded material.

The differences in mineral composition between the two lenses suggests that lens B is from a higher location in the exhalative sequence. With an origin through slumping and

for the relative location of the lenses. Lens B being higher in the sequence may be expected to be further away from the site of exhalation hence indicating a source to the north. Equally, overturning could have caused the deposition of lens B while lens A slumped further down the palaeoslope, and hence a source to the south. Obviously no conclusions can be drawn on the location of the stringer zone.

The massive sulphide mineralization was probably emplaced after slumping from the site of exhalation. The stockwork for the distally deposited sulphides may be represented by the alteration centred on Wart Hill, or equally may be completely eroded and hence not detected or may not yet be exposed. With very steep bedding it is feasible that the stringer zone could be vertically below the lenses and hence not exposed. The Osmond Fault and numerous other faults in the area could have provided the path-ways for the circulation of seawater, necessary for massive sulphide formation.

5.4 Sulphur Isotope Study

A sulphur isotope study was undertaken in order to compare results between various styles of mineralization and to determine the source of the sulphur in the hydrothermal system.

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Samples were obtained by drilling sulphide minerals from polished slabs using a dentist's drill for the four types of mineralization mentioned previously. The fine grained nature of the minerals prevented pure samples being obtained apart from the porphyroblastic pyrites. The samples were analysed in the Central Science Laboratory at the University of Tasmania by converting the sulphides to SO_2 using Cu_2O as an oxidizing agent at 800°C. Details of the method are given in Green (1983) and Ohmoto and Rye (1979).

The data are reported as $\delta^{34}S$, which is defined as the per mil deviation of the $^{34}S/^{32}S$ ratio of the compound relative to that of the troilite phase of the Canan Diablo meteorite. The results are shown in Table 5.1 and Fig. 5.15. For comparison, data from Mt. Lyell, Rosebery and Zeehan have been plotted in Fig. 5.16.

5.4.1 Discussion of Results

Fig. 5.15 displays a considerable enrichment in the heavy isotope and a concentration of results between +16 to 18‰. The spread of values for each of the styles of mineralization overlap and hence no distinction can be drawn between types using this method despite minor differences in average values (2-3‰).

The separation of the data from lens A into pyrite and base metals, (Fig. 5.15), reveals a significant difference

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Table 5.1 Sulphur Isotope Results

Cat No.	Mineral	$\delta^{34}S$	Type of Mineralization
68390	sph	17.0	weathered massive sulphide lens B
68391	sph	16.5	massive, lens B
68393	pyr	14.4	disseminated in weathered tuff/shale. lens B
68394	sph/gal	17.7	massive, lens B
	sphgal	16.9	
68406	pyr	5.0	massive, banded, B lens
	sph/gal/pyr	17.4	
	baryte	38.0	
	baryte	38.3	
	baryte	35.9	
68395	sph/pyr/gal	16.8	massive, A lens
68396	sph	16.8	clasts in chloritic tuff. A lens
68397	sph/gal	16.7	massive, A lens
	sph/gal	15.1	
68399	sph	14.4	massive, banded, A lens
	py	18.0	
	gal	16.7	
68400	py	12.9	at contact of massive ore and tuff. A lens
68401	sph/gal/py	16.9	disseminated in tuff. A lens
68402	sph/gal	16.9	massive banded, A lens
68403	pyr	19.2	massive banded, A lens
	pyr	4.9	
	pyr	17.4	
	sph	17.6	
	sph	26.2	
68404	sph	17.2	massive, weathered, A lens
	spy	7.6	
68405	py	6.8	banded, massive, samples taken
	py	11.7	from 3 band within 10cm. A
	py	15.4	lens
68407	py	36.5	vein style V19
68408	sph/gal	9.6	vein style with calcite V19
68409	py	15.5	porphyroblastic in tuff V19
68410	sph/gal/py	5.1	clasts of massive ore in tuff V19
68411	sph	13.5	vein style V19
68412	pyr	19.3	vein style V19
68413	pyr	10.7	vein style V19
68414	pyr	-7.1	pyritic tuff V29W
68415	pyr	15.6	pyritic tuff V29
68416	asp	13.2	vein style V31
68417	sph	10.8	vein style V31
68418	py	12.9	vein style V33
68419	sph	-5.9	vein style V33

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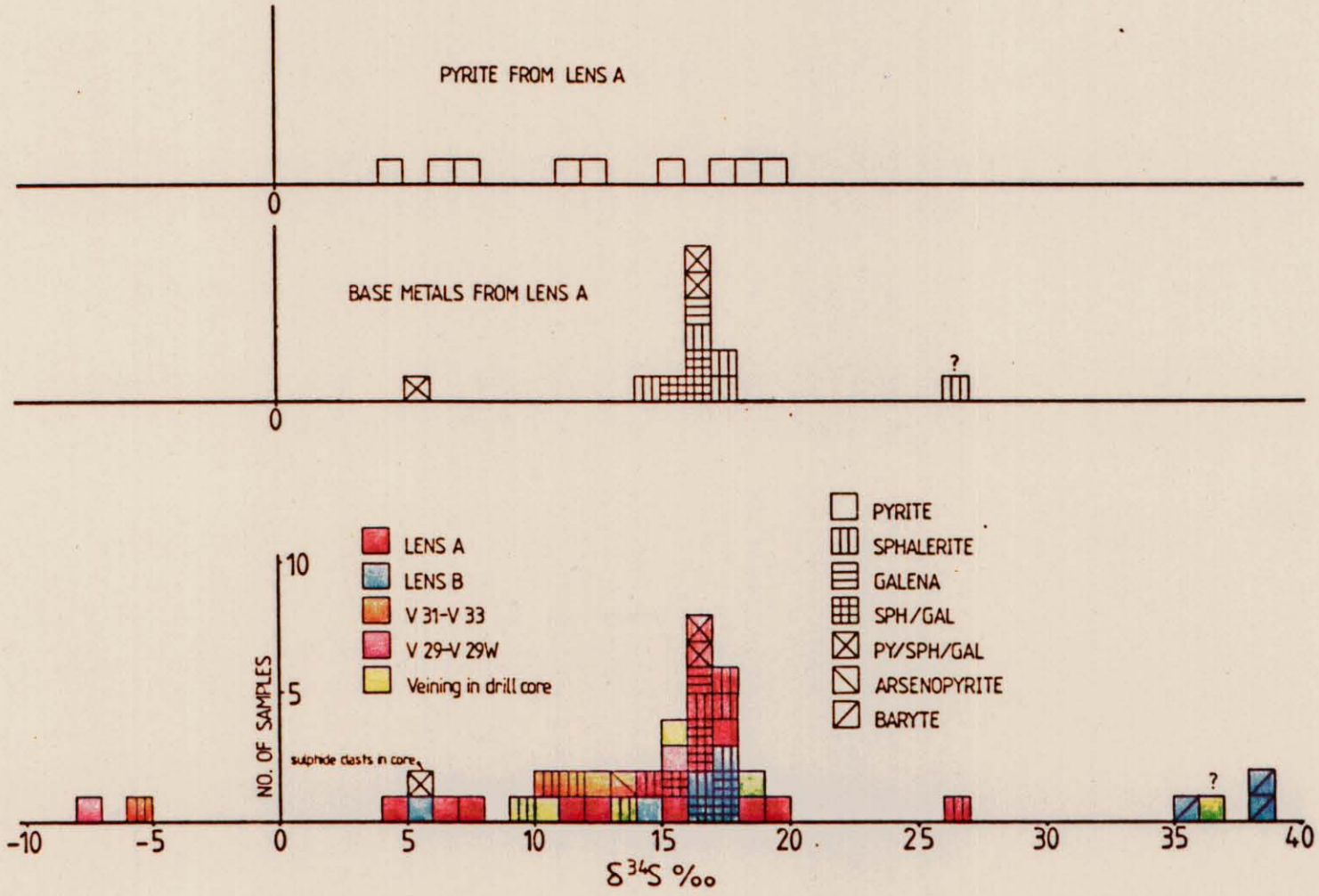

Fig. 5.15 Sulphur isotope results from the Wart Hill area

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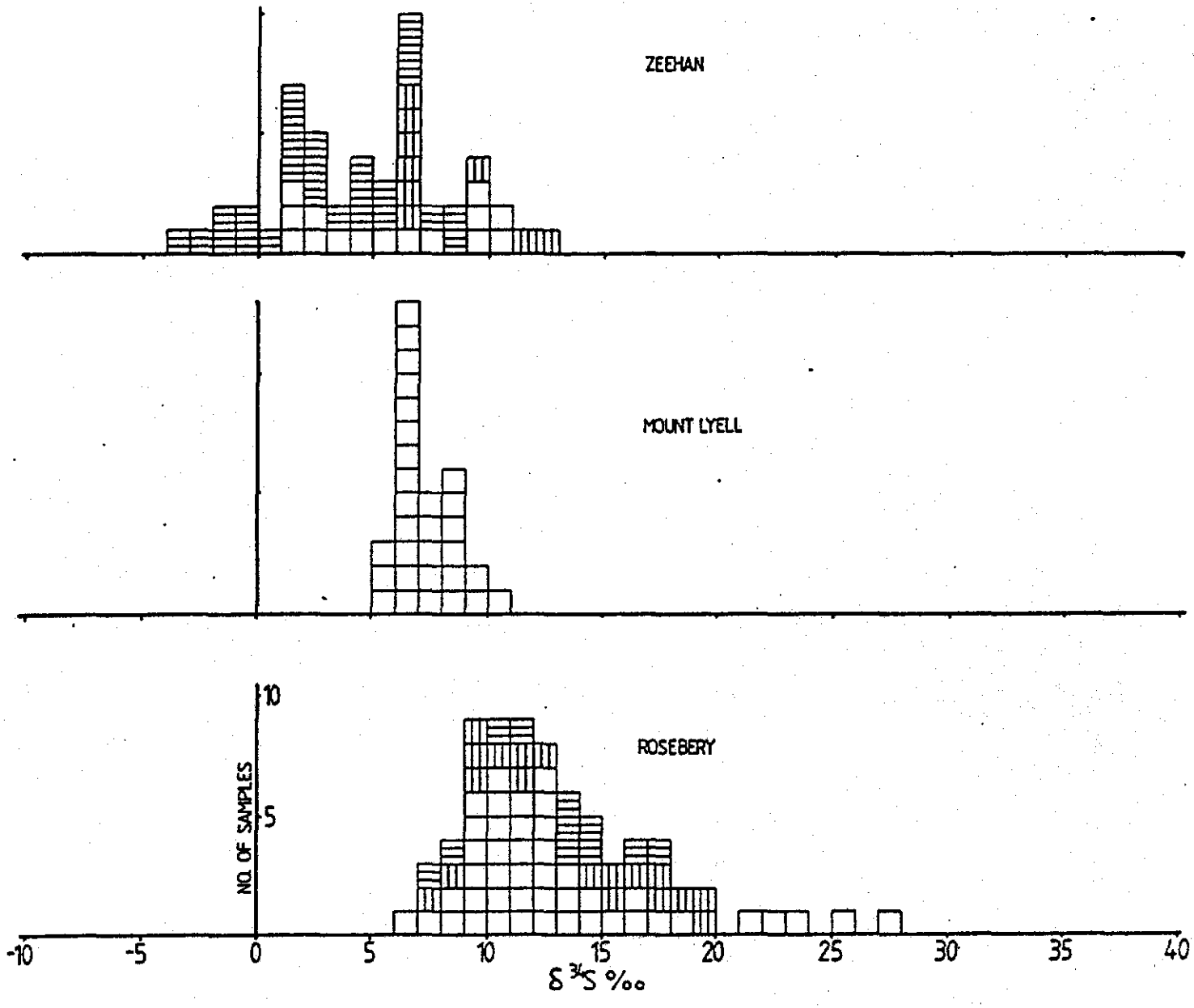

Fig. 5.16 Sulphur isotope data from Zeehan, Mt. Lyell and Rosebery
Data from Green et al (1981) Solomon et al (1969)

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al, 1969), if the possibly anomalous value of 26.5‰ is ignored.

There are three possible sources of mineralizing fluid, seawater, magmatic and sedimentary. For values of $\delta^{34}S$ of 16 to 18‰ the only likely source of the sulphur is seawater for the following reasons. Magmatic waters have sulphides with $\delta^{34}S$ values approximately equal to zero. Fractionation during crystallization is minimal and produces sulphides with an isotopic composition no greater than 7‰, (Ohmoto & Rye, 1979). This figure is too low for the sulphides in this study and hence a magmatic source is not possible.

Sedimentary sulphides produced by bacterial action are depleted relative to contemporary seawater sulphates by up to 25‰ and generally have a wide spread in values, (Ohmoto & Rye, 1979). Hence this is not a likely source for the base metals.

Cambrian seawater sulphates have a high $\delta^{34}S$ value of at least 30‰. Massive sulphides are typically depleted in the heavy isotope by 17.5‰ compared to contemporaneous seawater (Faure, 1977, p.413). Hence this is the only source likely to produce the values found in this study.

Several possible reasons exist for the much larger

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and several forms of pyrite were observed (framboidal, colloform and large euhedral crystals), suggesting at least three phases of crystallization. If conditions such as pH, oxygen fugacity (fO_2) or temperature change during formation the $\delta^{34}S$ values of pyrite can change markedly.

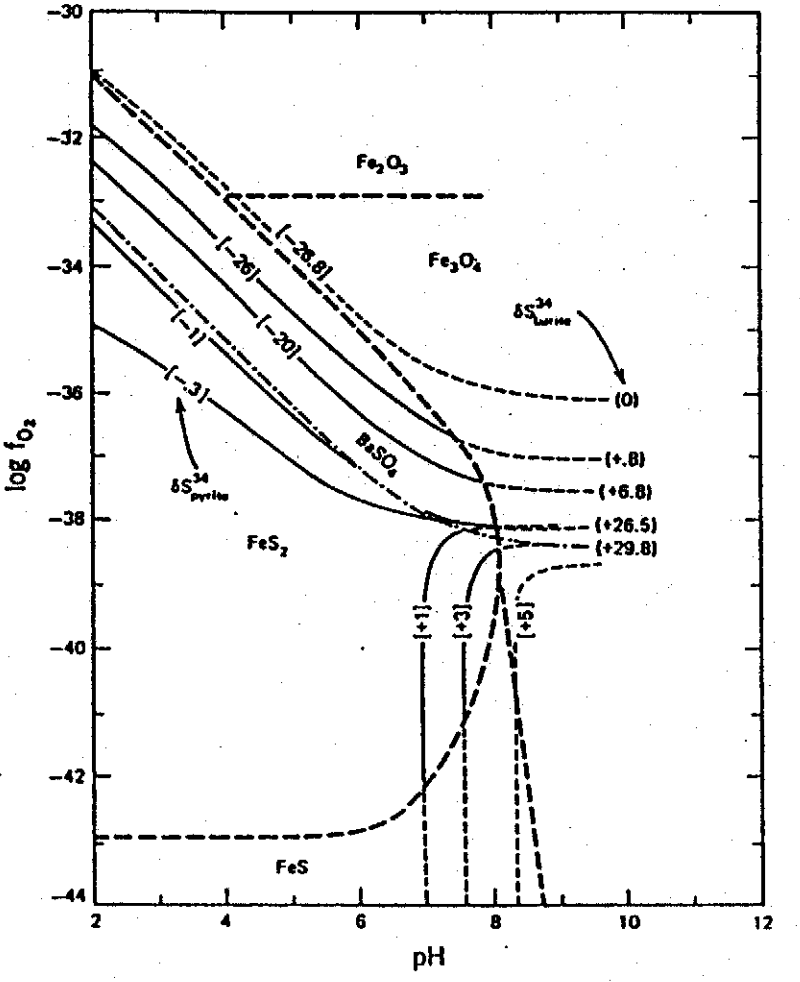
Fig. 5.17 shows the stability fields for Fe-S-O minerals on a pH-fO_2 plot. The lack of magnetite or pyrrhotite in the mineralization indicates that the minerals crystallized in the pyrite stability field. It is obvious from this diagram that as fO_2 increases the fractionation factor of pyrite also increases producing progressively lower $\delta^{34}S$ values. Hence this is one mechanism for producing the spread of pyrite values in Fig. 5.15.

Similarly an increase in temperature will cause an increase in the fractionation factor as the equilibrium between ^{32}S and ^{34}S is altered favouring the production of sulphides enriched in ^{32}S. Hence a steadily increasing temperature will produce a spread from high to low of $\delta^{34}S$ values. This type of change is supported by the analytical results from three bands of pyrite 5cm apart in one sample. The results were +6.8, +11.7 and +15.7‰. For this to occur conditions such as fO_2 or temperature must have been changing.

A third possible cause for the spread of pyrite values is mixing of the seawater with magmatic or sedimentary

892253

252



Isotopic composition of sulfur in pyrite and barite in the system Fe-S-O as a function of pH and the fugacity of oxygen. Square brackets indicate $\delta^{34}S$ of pyrite; round brackets denote $\delta^{34}S$ of barite. Note that $\delta^{34}S$ of pyrite varies widely depending on the fugacity of oxygen and the pH of the solution. The $\delta^{34}S$ of the total sulfur in the system is equal to zero per mil. The Fe-S-O mineral boundaries represent a total sulfur content of 0.1 moles S/kg H_2O, T = 250°C, ionic strength = 1.0. The dash-dot line is the barite soluble/insoluble boundary ($m_{Ba^{++}} \times m_{\Sigma S} = 10^{-4}$). (Adapted from Figure 5 (p. 559) of Ohmoto, H., Economic Geology, vol. 67, No. 5, 551-578, 1972 with permission for the use of the diagram from H. Ohmoto.)

Fig. 5.17 Stability fields for Fe-S-O minerals from Faure (1977) p.417

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892254

lower $\delta^{34}S$ values and hence if mixing occurs reduces the values for massive sulphide deposits. As, however, the base metal values are closely grouped, which would not occur if other water sources were involved, mixing appears unlikely.

Overall it appears that the massive sulphides were deposited from seawater with a $\delta^{34}S$ value of approximately 35‰. Changes in physical and chemical conditions after sphalerite and galena were crystallized produced a spread in the isotopic composition of pyrite which crystallized over a longer period.

Lead isotope studies of the mineralization as reported by Herrmann (1983) allowed distinction to be made between the massive sulphides and the vein style mineralization in the porphyries and at V33, V31. These differences as mentioned are not duplicated in the sulphur isotope data. The analysis of sulphide clasts in the drill core below lens A produced the same lead isotope composition as lens A, but as shown in Fig. 5.15 the $\delta^{34}S$ value is much lower than the lens values. This indicates that there is no correlation between lead and sulphur isotope values for different styles of mineralization.

The $\delta^{34}S$ values for the Cambrian Mt. Lyell and Rosebery massive sulphide deposits and the Devonian Zeehan vein style deposits are shown in Fig. 5.16. The Cambrian deposits both have lower $\delta^{34}S$ values than those determined in this study,

(Solomon et al, 1969). As there is almost certainly an age difference between these deposits and those at Wart Hill this may be a function of the $\delta^{34}S$ value of Cambrian seawater changing with time.

Alternatively the dilution of the seawater by magmatic fluids at Rosebery (Green et al, 1981) and Mt. Lyell (Solomon et al, 1969) could have produced the variation. The differences could also be related to the deposit's relative position in the paragenetic sequence of copper-rich to zinc-rich to lead rich ores, as discussed previously, due to changing conditions of deposition.

The Devonian Zeehan deposit is essentially of magmatic origin (Polya et al, 1985). The vein style mineralization of V33 also may be of Devonian age (R. Large, pers comm.) but differs from that at Zeehan and does not appear to have had a magmatic source of sulphur. A mixing of source water, however, cannot be precluded.

Sulphur isotopes can be used in the determination of temperature formation if equilibrium between sulphide minerals were achieved and if pure samples were obtained. As neither of these conditions were met in this study no attempt was made at temperature calculation.

APPENDIX 6

NOTES ON VOYAGER 24 GOLD MINERALIZATION AT ELLIOTT BAY

by Ross R Large

892257

NOTES ON THE VOYAGER 24 GOLD MINERALIZATION, ELLIOTT BAY

by

ROSS R. LARGE

University of Tasmania.

Hobart

February 16th, 1985.

1. INTRODUCTION

Stream sediment sampling over the western portion of E.L.27/76 in the 1979-1981 period led to the definition of a gold drainage anomaly about 7 km long by 500 m wide covering the uppermost volcanics of the Central Belt sequence (figure A1). The central portion of the anomaly, where the highest gold values were recorded, was subsequently gridded and developed as the Voyager 24 prospect. The history of this prospect is briefly outlined in table 1.

This report outlines the previous work programme by Geopeko, the significant results of that programme, and points to areas of further gold potential.

2. GEOCHEMISTRY

The presence of gold in the area was initially indicated by routine stream sediment sampling (-80 mesh) carried out in 1979. Results for part of the area covered are shown in figure A3. Seven samples returned anomalous values from 50 to 3000 ppb gold above a background of 5 to 40 ppb. A detailed panned concentrate drainage survey was completed in 1981 to follow up the initial results. The total survey area, and the results for gold, tin and tungsten are shown in plan B1. Gold results for the central, Voyager 24 area, are shown in figure A4. The zone of samples greater than 500 ppb Au, runs for 6 to 7 km along strike, and has been closed off just north off Wart Hill, but remains open to the south. Minor anomalous tin (greater than 100 ppm Sn) is coincident with the gold in an area adjacent to the Stoney Creek Granite.

The central area of the anomaly, where gold values reached a maximum, was selected for detailed gridding and follow-up. This area is referred to as Voyager 24. Results of gold analyses from soil samples collected on the grid are shown in figure A6. Orientation work

Table 1: History of discovery and program of exploration at Voyager 24.

Season	Program	Results
1979	Stream sediment geochemistry (-80 mesh fraction) over a 20 sq.km area.	Seven samples showed anomalous gold values.
1980	Geological mapping.	No gossans or distinct alteration zones located.
1981	1. Detailed panned concentrate stream sediment survey.	Zone of anomalous gold in stream sediments stretches for 6 km along strike.
	2. Gridding of central portion of anomalous zone (1 x 1 km).	
	3. B horizon soil geochemistry.	Discrete gold soil anomalies and diffuse Pb, Zn anomalies defined.
	4. Gradient array I.P.	No significant anomalies.
1982	1. Stratigraphic drill hole.	Altered rhyolitic volcani clastics contain above background gold (50-1000 ppm).
	2. Costeaning of gold soil anomalies.	
	3. Microprobe study of gold grains from stream sediment samples.	Demonstrated the coarse gold was of a primary nature.
1984	Drilling below soil gold anomalies (3 holes).	Stratabound nature of gold mineralization confirmed. High grade gold (1-17.5 ppm), intersected in narrow quartz-carbonate veins.

showed that maximum gold values were recorded in samples collected from the B-C horizon interface, at about 0.2 to 0.7 m depth. On the southern three lines (9000N, 9100N and 9200N) the increased peat cover prevented the collection of samples from the required depth. All samples were analysed by A.A.S. with carbon rod finish (A.L.S. Laboratories, Brisbane) with a lower level of detection of 3 ppb. The contoured plan of gold in ppb (figure A6) exhibits a northeast trending zone of patchy anomalies, varying from 50 to 1000 ppb. Minor lead and zinc anomalies are roughly coincident with the gold.

3. GEOLOGY

The broad drainage gold anomaly occurs over acid volcanics at the stratigraphic top of the Wart Hill Pyroclastics of the Central Belt sequence. The anomaly is not confined to one rock type, but cuts across the sequence from the Stoney Creek Granite in the south, up through porphyries, lavas and volcaniclastics toward the top of the Central Belt.

At Voyager 24 the soil sampling and drilling suggest that the gold is concentrated in a sequence of altered rhyolitic tuffs and agglomerates (probably these rocks are better termed volcaniclastics and volcanic breccias). As shown in figure A2, the altered volcaniclastics are overlain and underlain by thin black shale and shaly sandstone horizons. Stratigraphically below the lower shale horizon is a massive body of rhyodacite which forms a dome-like outcrop pattern and may represent a pile of lavas or a subvolcanic intrusive.

An east-west trending fault is interpreted to cut off the gold-bearing horizon about 200 m south of DDH3, however very little outcrop is present in this area, and the precise shape of the rhyodacite contact remains unknown.

Four diamond drill holes were put down in the area of the soil anomalies. Cross sections for DDH1, 2 and 3 are shown in figures A7 and A8. Gold values through the altered volcaniclastics are generally erratic, but a well defined stratabound zone with values from 50 to 400 ppb is apparent. Isolated higher values of 500 to 2000 ppb are generally related to narrow carbonate-rich veinlets. In DDH3 a 3 m intersection averaged 17.5 ppm Au. In this interval a narrow quartz-calcite-galena-sphalerite vein (0.2 m wide) runs roughly parallel to the core axis.

Anomalous lead, zinc, arsenic and antimony with maximum values up to 2000 to 5000 ppm are present in sections of the altered volcaniclastics, but are not necessarily coincident with the gold.

Alteration in the volcanics consists dominantly of carbonate, sericite and silica. Pyrite content is generally about 1-2% but may reach up to 5% in some tuff horizons.

4. GEOPHYSICS

The Voyager 24 grid was covered with a detailed gradient array I.P. survey in 1981 and a dipole-dipole I.P. survey in 1983. No major anomalies were defined. Weak trends in the data can be roughly correlated with the position of black shale horizons. An anomaly centred at 9500N, 9025E, occurs over the gold-bearing zone between DDH2 and DDH4 and may relate to a small concentration of sulphides.

The Utem survey carried out in early 1984 did not extend as far as the Voyager 24 area. Due to the nature of the mineralization present, i.e. stratabound gold in low sulphide-bearing quartz veins and altered tuffs, it is unlikely that I.P., E.M. or any other geophysical method will provide meaningful drill targets.

5. DISCUSSION OF FUTURE POTENTIAL AT VOYAGER 24

The drilling to date suggests the gold is stratabound, occurring within the altered tuffs and in isolated quartz-carbonate veins cutting the tuffs. In an approximate fashion, the anomalous gold values, and degree of quartz veining, increase toward the south from DDH4, through DDH1 and 2 to DDH3. The best potential for increased gold grades, either within a quartz vein stockwork zone, or within a stratabound tuff horizon, is considered to lie in the area 100 to 500 m south of DDH3 adjacent to the interpreted east-west fault structure.

Due to the greater depth of soil and peat cover in the southern part of the prospect, this potential zone south of DDH3, has not been adequately covered by the soil sampling programme.

Lead isotope studies by Brian Gulson (C.S.I.R.O.) show that galena associated with the gold mineralization at Voyager 24 has the target signature of Rosebery and Que River. This suggests that the mineralization is probably Cambrian and volcanogenic, and probably formed in a subaerial or shallow submarine environment.

A geological sketch section, showing the writer's model for mineralization and gold potential at Voyager 24 is given in figure A9. Compare this section with the geological plan in figure A2. In this model the gold mineralization is postulated to occur adjacent to a penecontemporaneous fault and associated with emplacement of the rhyodacite body.

6. GOLD POTENTIAL OUTSIDE VOYAGER 24

Reconnaissance soil sampling between Voyager 24 and Wart Hill (Voyager 19) in 1983-1984 over the northern part of the gold drainage anomaly, failed to locate significant zones of bedrock gold mineralization, comparable to Voyager 24.

To the south of Voyager 24, the area of anomalous gold-tin drainage adjacent to the Stoney Creek Granite (Voyager 30) was investigated by gridding, soil geochemistry, I.P., magnetics and VLF-E.M. No coherent gold soil anomalies emerged from this work. However a number of moderate I.P. and VLF-E.M. anomalies were defined which justify follow-up. A re-appraisal of the geophysical and geochemical results from Voyager 30 is warranted before further work is undertaken.

7. RECOMMENDATION

Detailed soil sampling be carried out over the southern portion of the Voyager 24 grid between 8800N and 9200N from 8500E to 9100E. Samples should be collected at 12.5 m intervals along lines which are 50 m apart. Every effort must be made to collect the samples at the B-C horizon interface, well below the peat cover. It is most probable that a hand auger will not penetrate to the required depth. I suggest that the hand-powered hammer drill of the Poltock Contractors may be suitable for the job.

Any coherent gold anomalies to develop from this work should be diamond drill tested.

R.R. Large

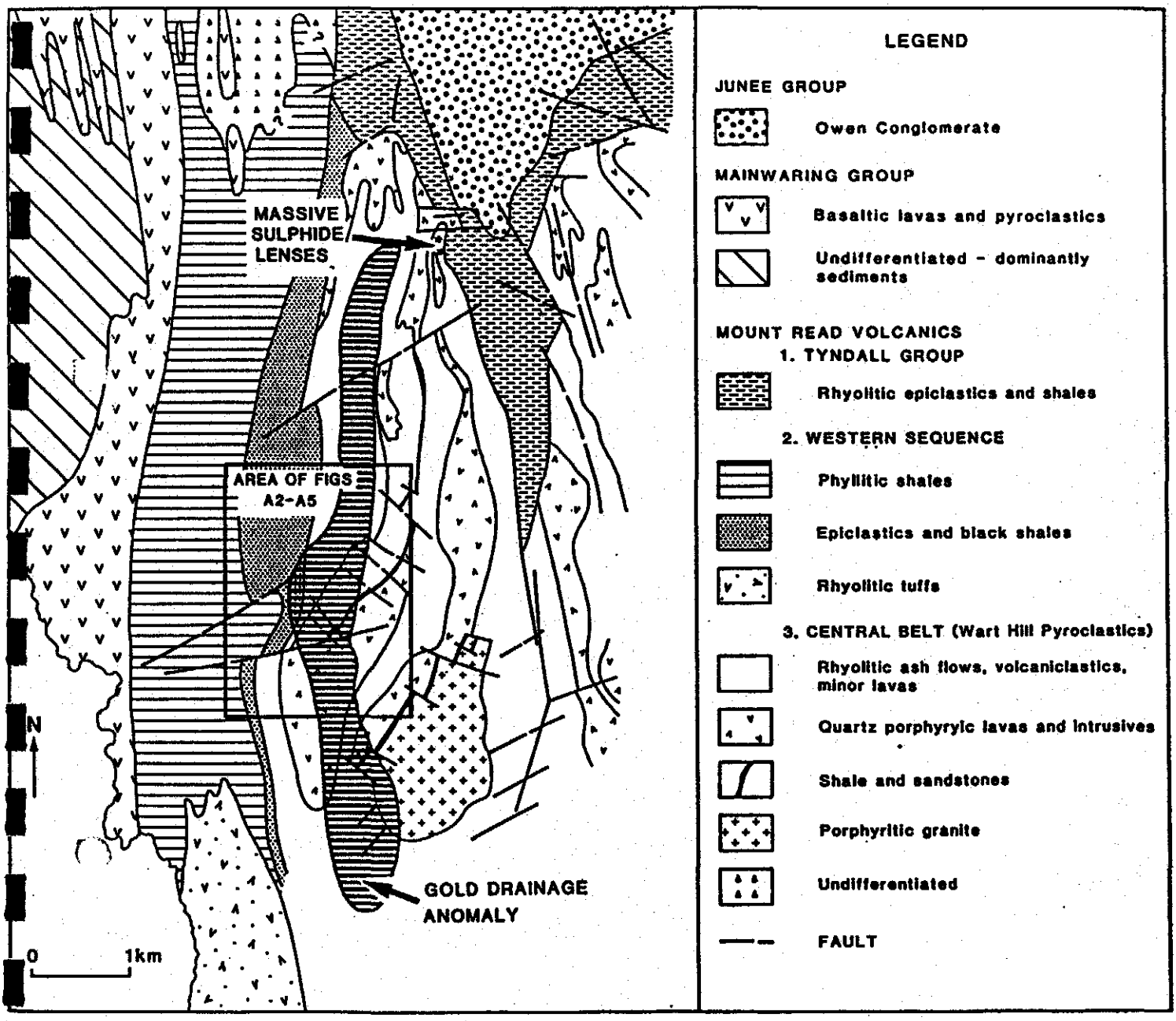


FIGURE A1 - Geology of the Wart Hill area, Elliott Bay, E.L. 27/76.

5 cm

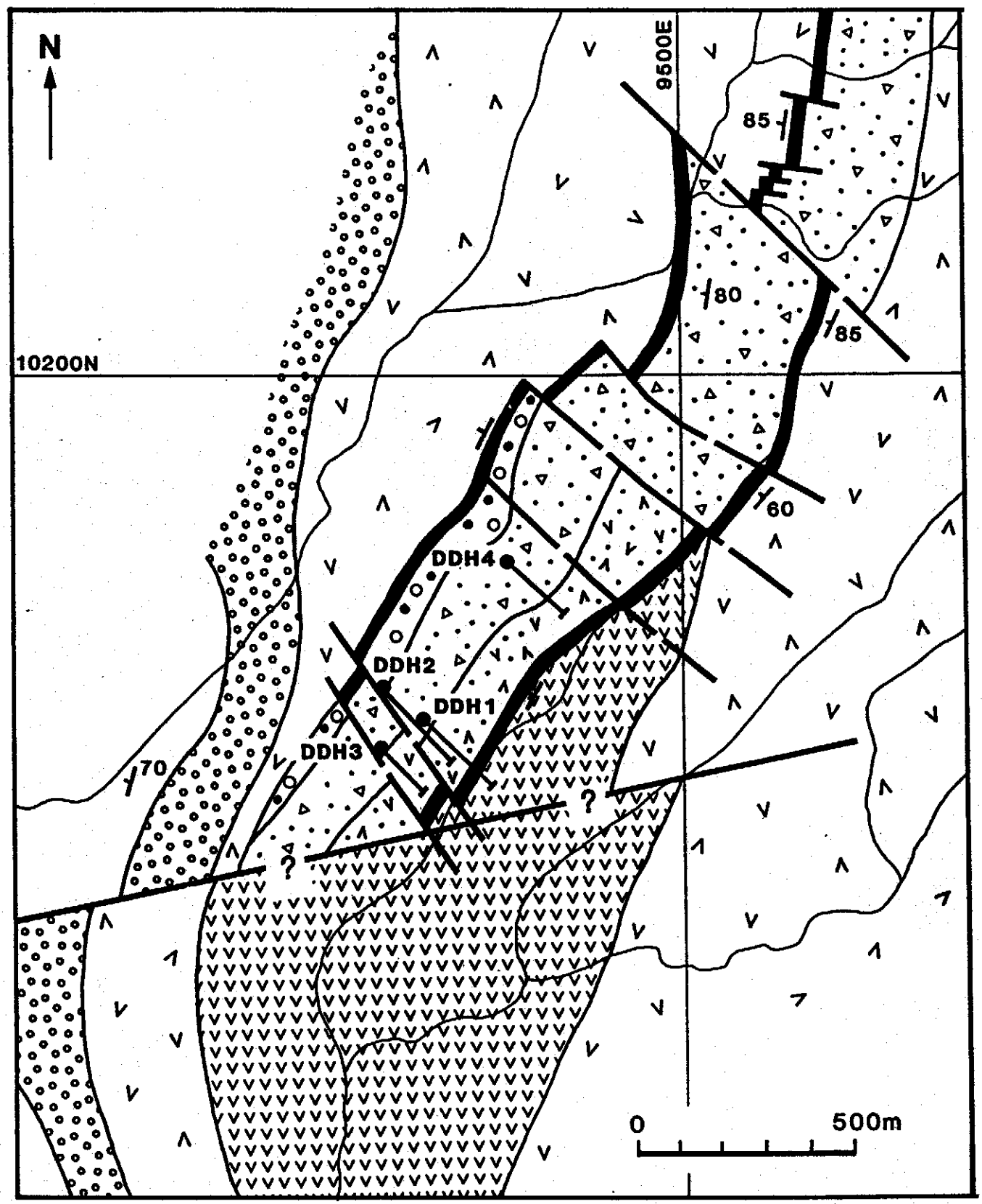
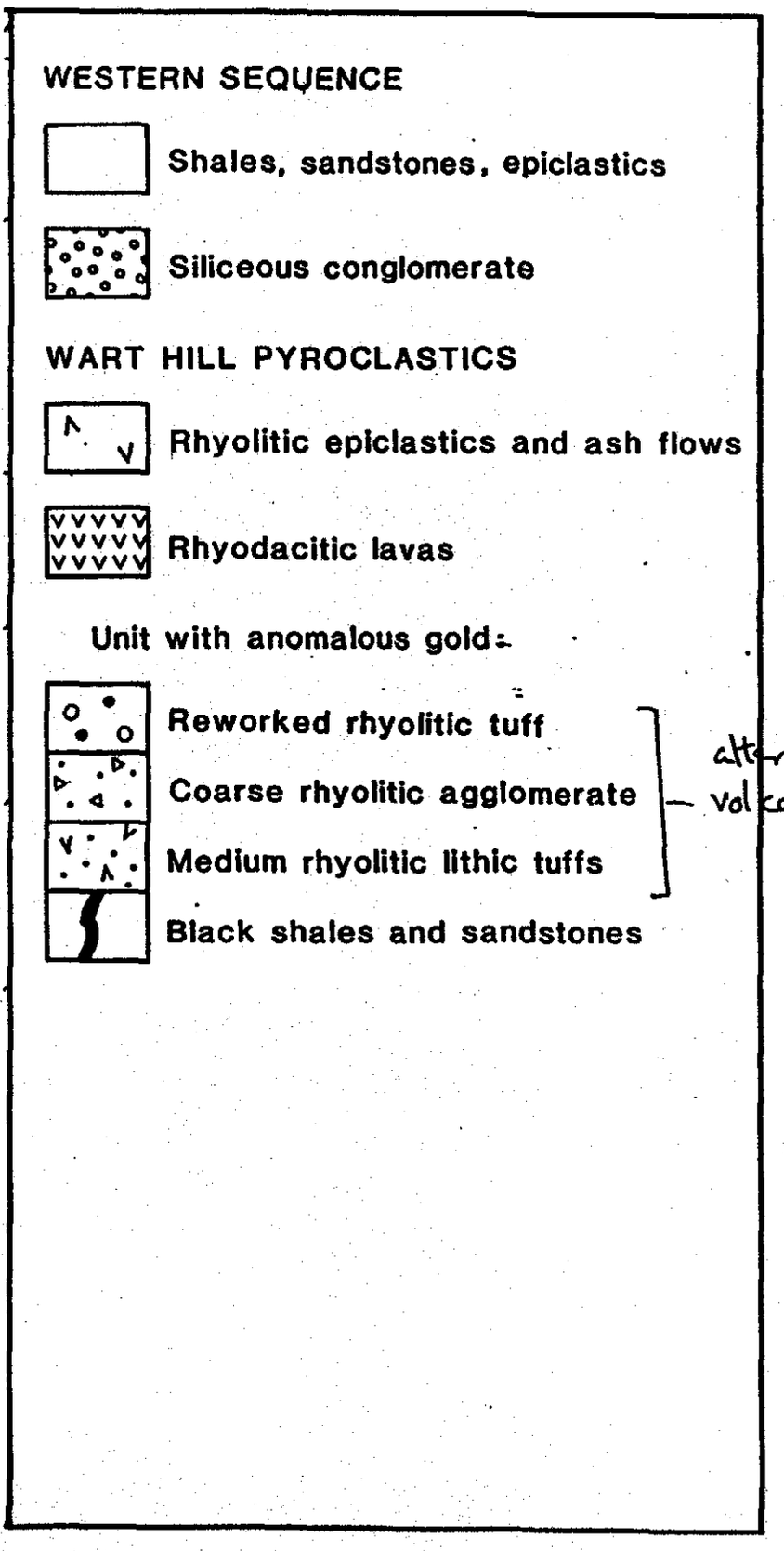


FIGURE A2 - Detailed geology of Voyager 24 prospect, Elliott Bay.

5 cm

892266


WESTERN SEQUENCE
Shales, sandstones, epiclastics
Siliceous conglomerate
WART HILL PYROCLASTICS
Rhyolitic epiclastics and ash flows
Rhyodacitic lavas
Unit with anomalous gold:-
Reworked rhyolitic tuff
Coarse rhyolitic agglomerate
Medium rhyolitic lithic tuffs
Black shales and sandstones
altered volcaniclastics.

892267

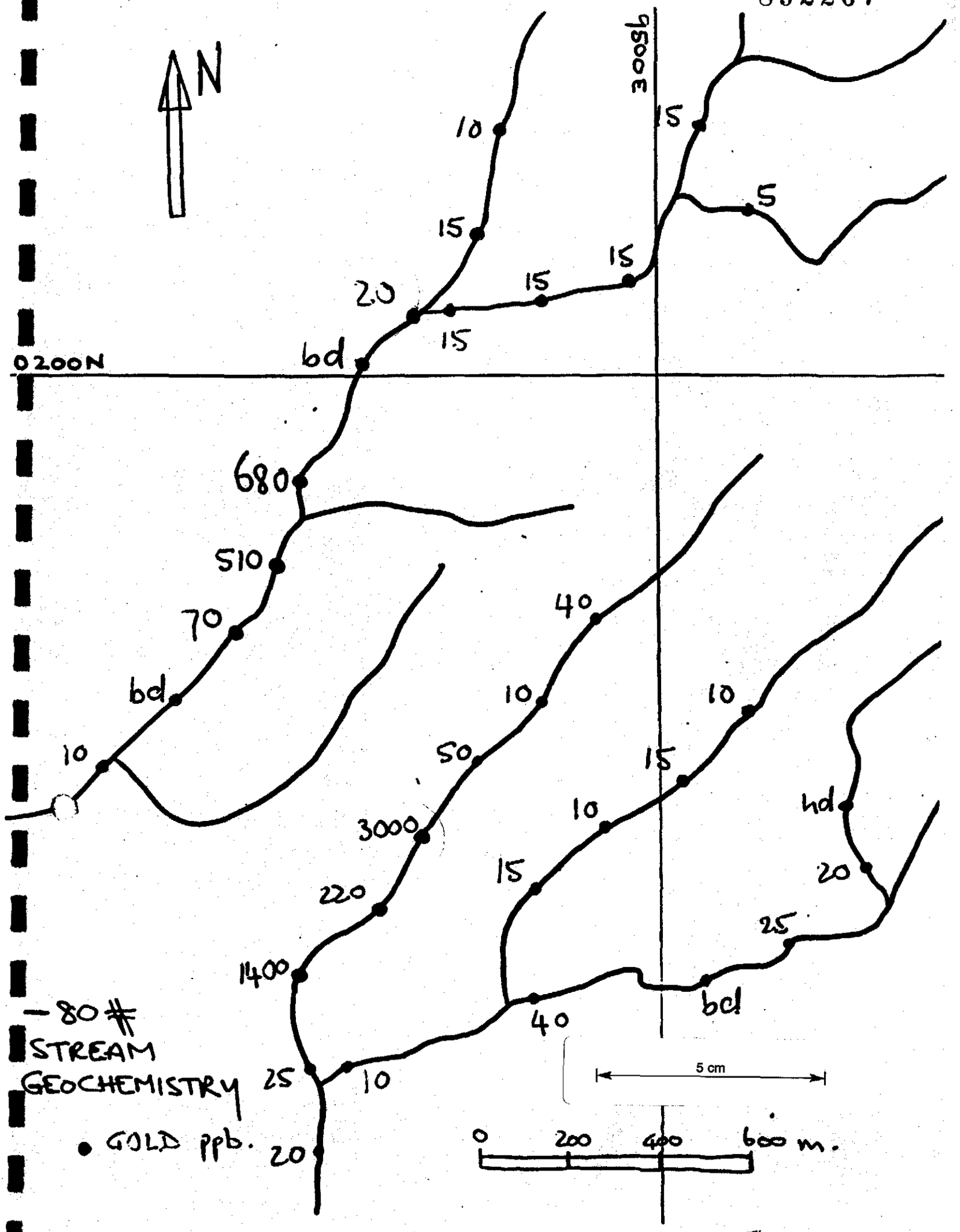


FIGURE A3.

892268

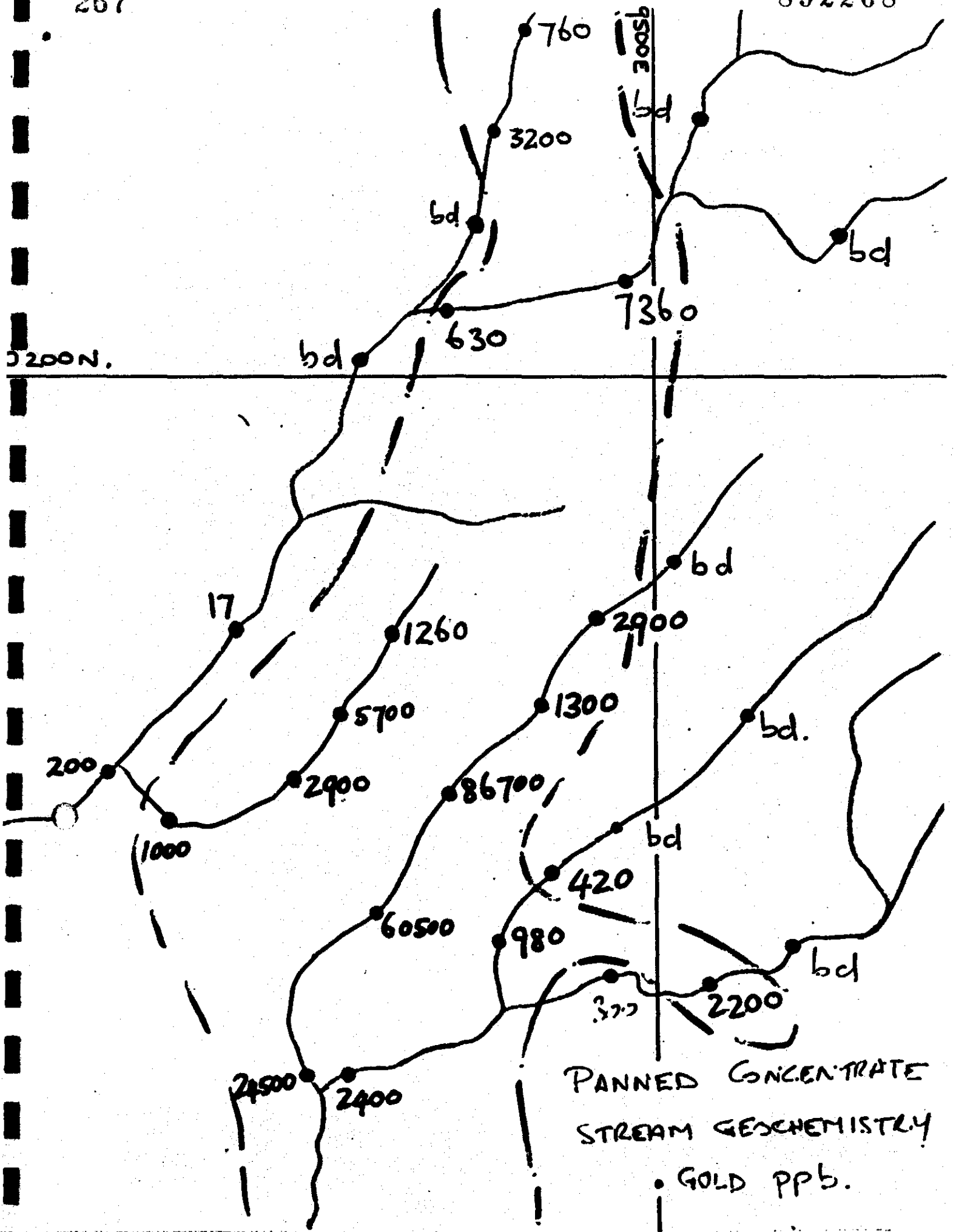


FIGURE A4.

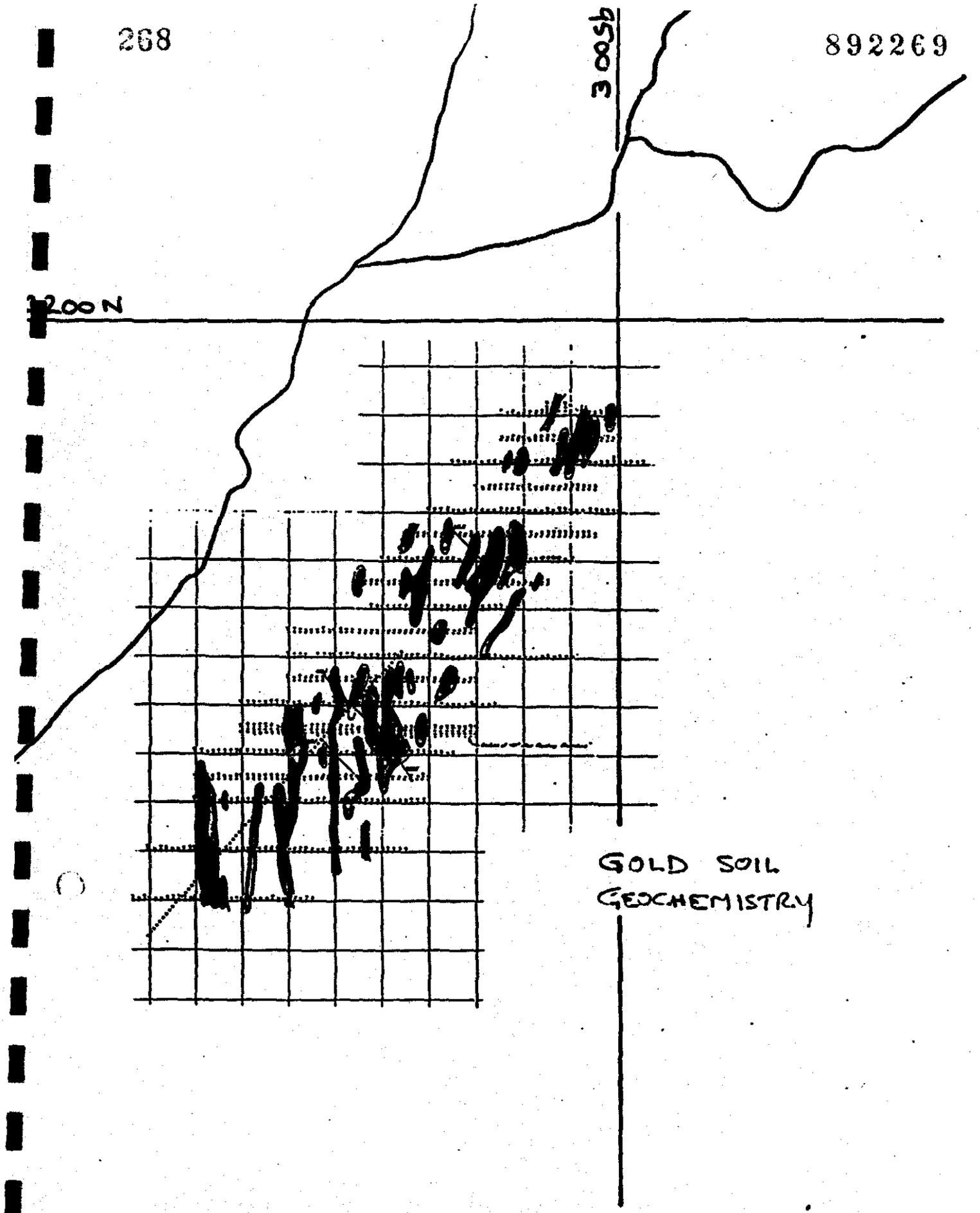
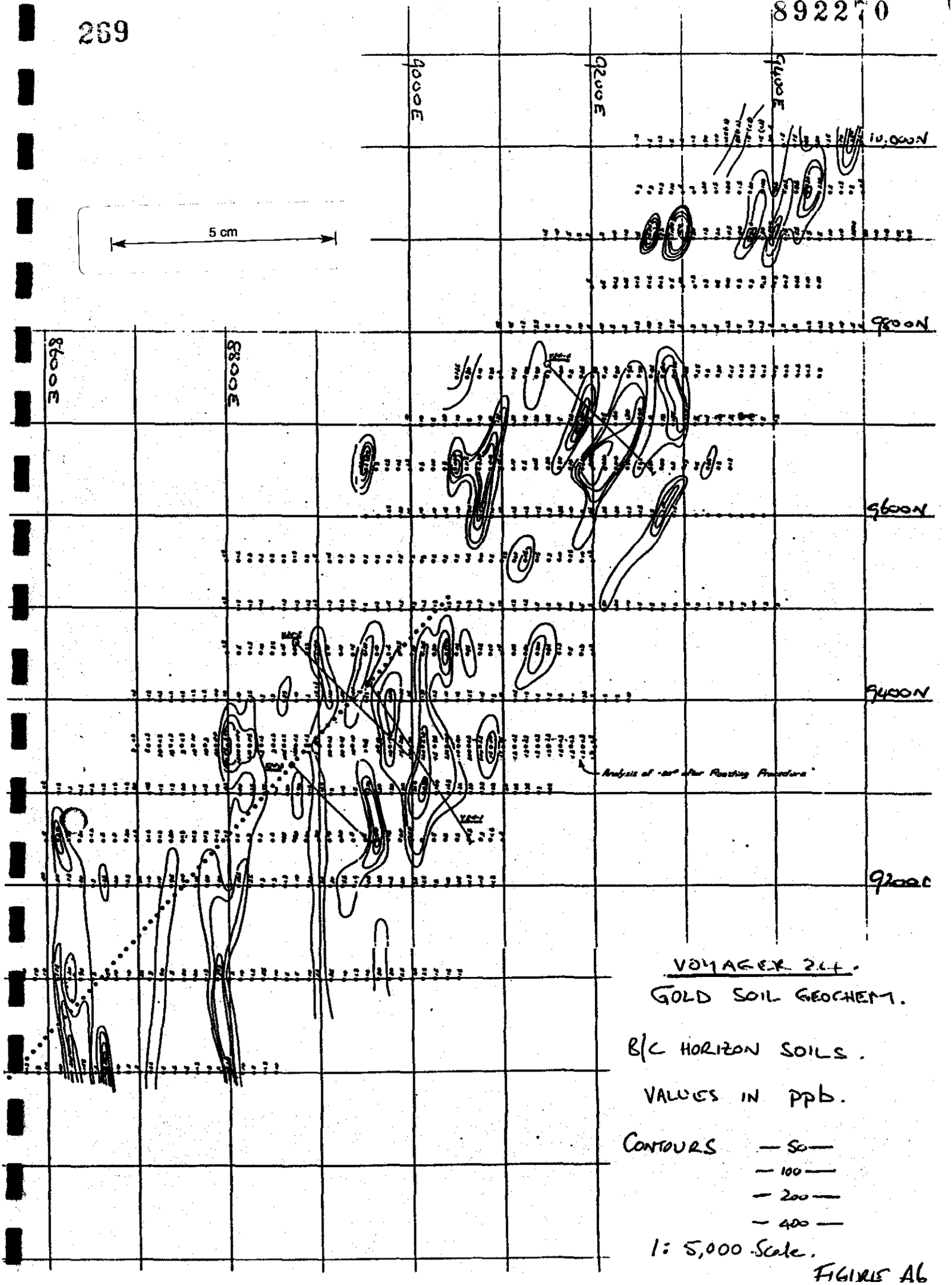


FIGURE A5.

892270



VOYAGEUR 21+.

GOLD SOIL GEOCHEM.

B/C HORIZON SOILS.

VALUES IN ppb.

CONTOURS — 50 —
— 100 —
— 200 —
— 400 —

1: 5,000 Scale.

FIGURE A6

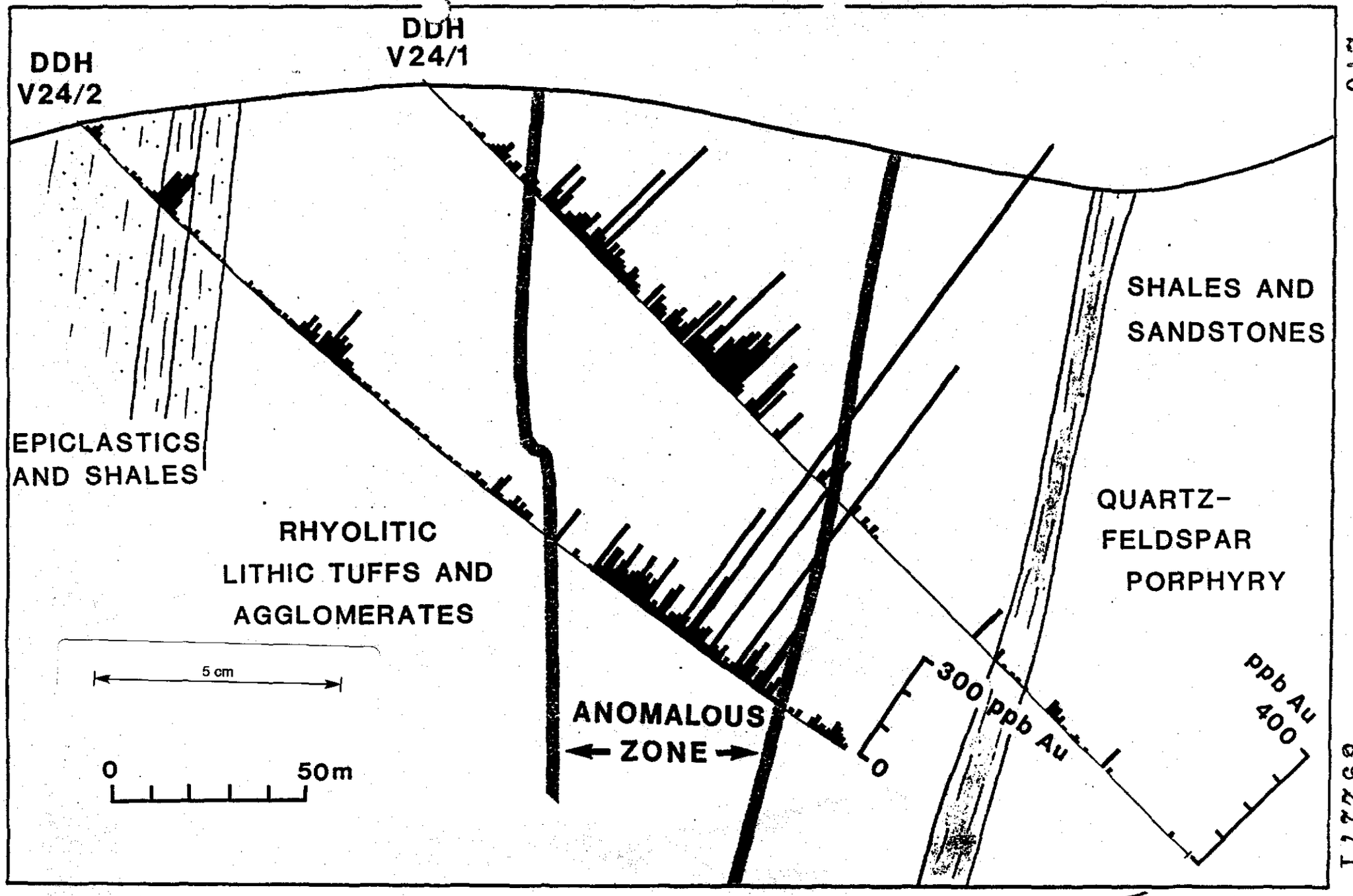

DDH
V24/2
DDH
V24/1
SHALES AND
SANDSTONES
EPICLASTICS
AND SHALES
RHYOLITIC
LITHIC TUFFS AND
AGGLOMERATES
QUARTZ-
FELDSPAR
PORPHYRY
5 cm
0
50m
ANOMALOUS
ZONE
300 ppb Au
0
ppb Au
400

FIGURE A7.

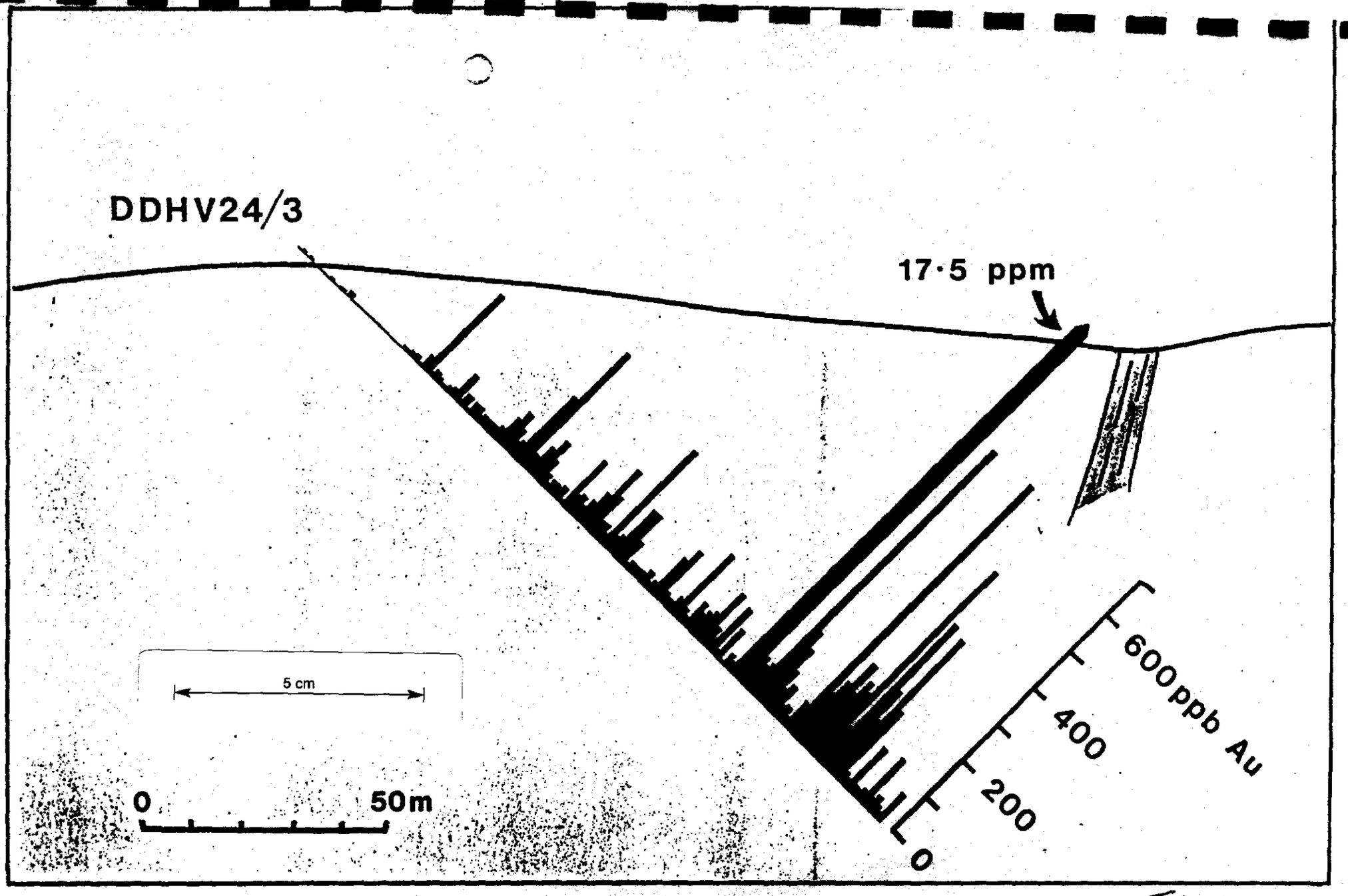


FIGURE A8.

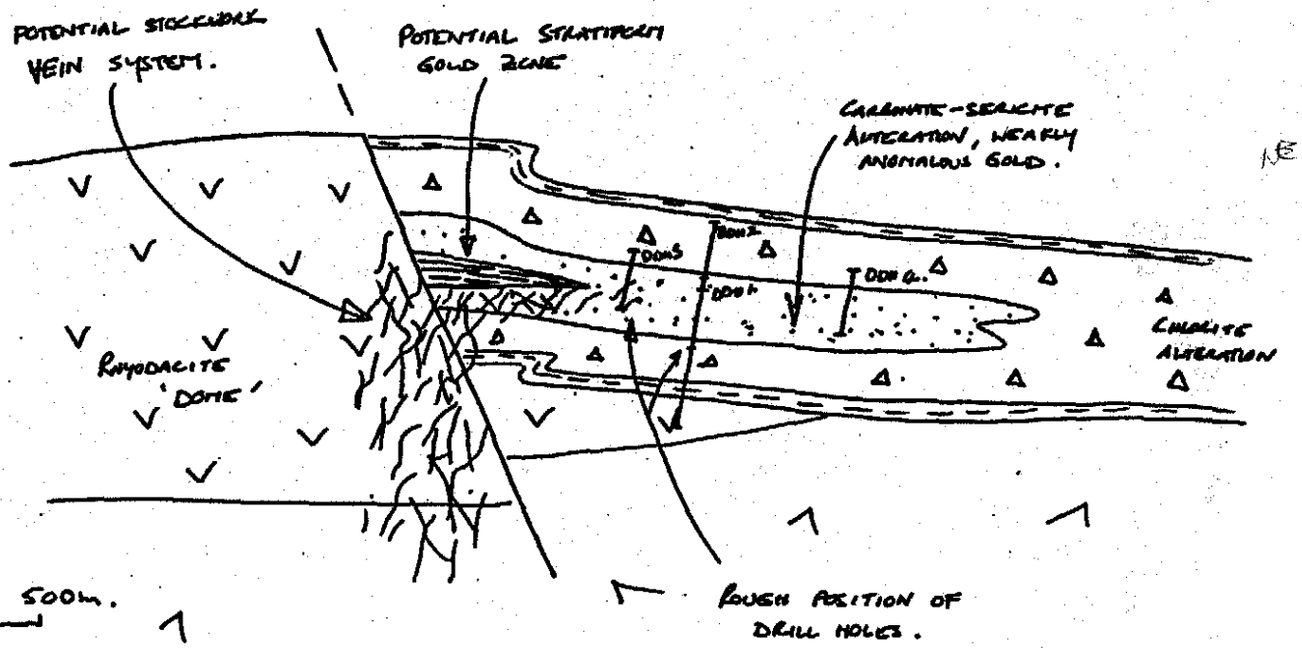


FIGURE A9 : MODEL FOR GOLD MINERALISATION VOYAGER 24.

LONG SECTION LOOKING NORTH WEST.

375 000 E
380 000 E
385 000 E
390 000 E
52 65 000 N
52 60 000 N
52 55 000 N
52 50 000 N
52 45 000 N
52 40 000 N
SHEET 1 2 3 4
E.L. 40/85
V1 V2 V3 V4 V5 V6 V7 V8 V9 V10 V11 V12 V14 V15 V16 V17 V18 V19 V20 V21 V22 V23 V24 V25 V26 V27 V28 29W V29 V30 V31 V32 V33 V34 V35 V36
MT DESMOND 1210 m RL
PENDERS PROSPECT
DRAKE CK PROSPECT
LEWIS RIVER PROSPECT

LEGEND

- Unconsolidated Tertiary Gravel
- 18 Ordovician 'Owen' conglomerate / quartzite

CAMBRIAN

TYNDALL GROUP CORRELATES
- 3 Grey–black shale / siltstone
- 51 Coarse rhyolitic epiclastics & sandstones

DUNDAS GROUP ?
- 26 Greywacke, shale

MAINWARING GROUP
- 45 Andesitic–basaltic lava, breccia, tuff, tuffaceous shale
- 46 Dolimitic shale, dolomite

WESTERN VOLCANO–SEDIMENTARY SEQUENCE
- 52 Tuffaceous greywacke, sst, conglomerate Rhyolitic epiclastics
- 69 Argillaceous phyllite, siltstone, black shale
- 27 'Pender's Tuffs' Rhyolitic crystal tuff, minor sediment

WART HILL ACID PYROCLASTICS
- 48 Rhyolitic qtz. phyric lava
- 30 Sericitic quartz crystal tuff, lithic tuff, rhyolitic agglomerate
- 38 Chloritic quartz feldspar crystal lithic tuff
- 41 Variably highly chloritic (altered?) pyroclastics & f.g. lavas
- 46 Chloritic c.g. quartz phyric lava
- 47 Fine grained phyric dacite lava
- 60 Quartz pebble conglomerate, micaceous sandstone, siltstone
- 58 Pyritic grey–black slate, siltstone
- 19 STONEY CRK. PORPHYRITIC MICROGRANITE

WANDERER RIVER TUFF
- 38 Pink hematitic rhyolitic crystal/lithic tuff, lava

HUDSON RIVER PYROCLASTICS
- 40 Chloritic qtz. feldspar crystal lithic tuff, rhyolitic qtz. biotite phyric lava
- 58 Shale, greywacke, fine tuffaceous sediment

ELLIOT POINT PORPHYRY
- 22 Cse. grained quartz feldspar–biotite porphyry: probable sub–volcanic intrusive

CAMBRIAN GRANITES
- 19 Undifferentiated Granite
- 66 PRE € ARTHUR GROUP – Undifferentiated qtzte & meta–seds
- 34 UNDIFFERENTIATED ACID VOLCANICS

N.B. Box numbers refer to Derwent series 19 colour pencils

Grid discrepancies occur between Geopeko maps and this plan, which is preliminary only.

Geology taken from 1:42000 & 1:10000 Geopeko plans (Herrmann, 1983).

(V19) Geopeko 'Voyager' Prospect location

892274

5 cm

87-2696 Vol. 2/4

CYPRUS MINERALS

ELLIOTT BAY - E.L. 40/85

GEOLOGY AND PROSPECT LOCATION

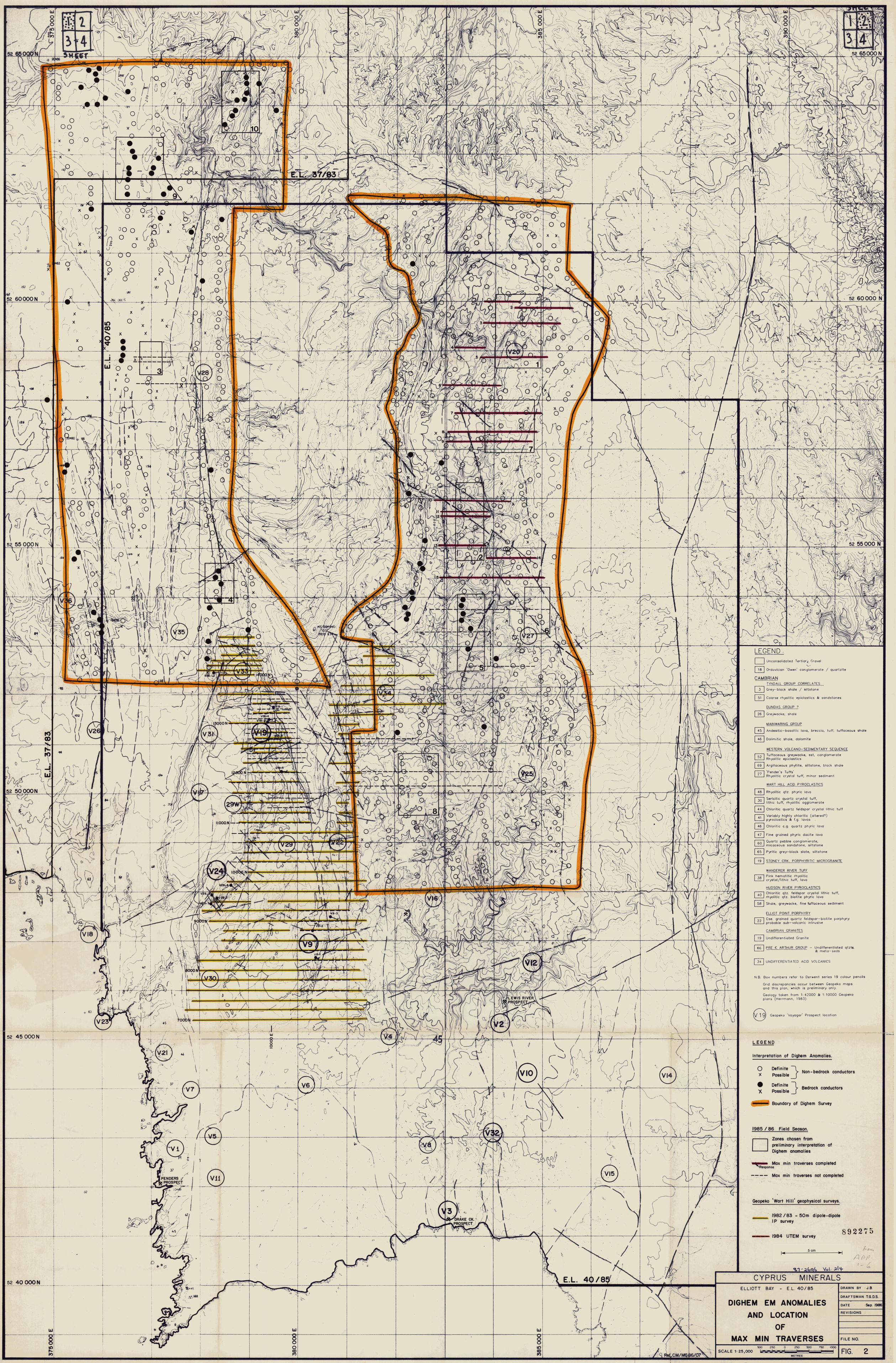
DRAWN BY : J.B.
DRAFTSMAN : T.G.D.S.
DATE : Sep. 1986
REVISIONS :
FILE NO.

SCALE 1:25,000 500 250 0 250 500 750 1000 METRES

FIG. 1

Ref. CM/MG86/07

CYPRUS REPORT 525 APPENDIX 1



LEGEND

Unconsolidated Tertiary Gravel

18 Ordovician 'Owen' conglomerate / quartzite

CAMBRIAN

TYNDALL GROUP CORRELATES

3 Grey–black shale / siltstone

51 Coarse rhyolitic epiclastics & sandstones

DUNDAS GROUP ?

26 Greywacke, shale

MAINWARING GROUP

45 Andesitic–basaltic lava, breccia, tuff, tuffaceous shale

46 Dolimitic shale, dolomite

WESTERN VOLCANO–SEDIMENTARY SEQUENCE

52 Tuffaceous greywacke, sst, conglomerate Rhyolitic epiclastics

69 Argillaceous phyllite, siltstone, black shale

27 'Pender's Tuffs' Rhyolitic crystal tuff, minor sediment

WART HILL ACID PYROCLASTICS

48 Rhyolitic qtz. phyric lava

30 Sericitic quartz crystal tuff, lithic tuff, rhyolitic agglomerate

44 Chloritic quartz feldspar crystal lithic tuff

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47 Fine grained phyric dacite lava

60 Quartz pebble conglomerate, micaceous sandstone, siltstone

65 Pyritic grey–black slate, siltstone

19 STONEY CRK. PORPHYRITIC MICROGRANITE

WANDERER RIVER TUFF

38 Pink hematitic rhyolitic crystal/lithic tuff, lava

HUDSON RIVER PYROCLASTICS

40 Chloritic qtz. feldspar crystal lithic tuff, rhyolitic qtz. biotite phyric lava

58 Shale, greywacke, fine tuffaceous sediment

ELLIOT POINT PORPHYRY

22 Cse. grained quartz feldspar–biotite porphyry; probable sub–volcanic intrusive

CAMBRIAN GRANITES

19 Undifferentiated Granite

66 PRE € ARTHUR GROUP – Undifferentiated qtzte. & meta–seds

34 UNDIFFERENTIATED ACID VOLCANICS

N.B. Box numbers refer to Derwent series 19 colour pencils

Grid discrepancies occur between Geopeko maps and this plan, which is preliminary only.

Geology taken from 1:42000 & 1:10000 Geopeko plans (Herrmann, 1983).

V19 Geopeko 'Voyager' Prospect location

LEGEND

Interpretation of Dighem Anomalies.

○ Definite
× Possible
} Non-bedrock conductors

● Definite
× Possible
} Bedrock conductors

Boundary of Dighem Survey

1985 / 86 Field Season.

Zones chosen from preliminary interpretation of Dighem anomalies

Max min traverses completed (Response)

Max min traverses not completed

Geopeko 'Wart Hill' geophysical surveys.

1982 / 83 – 50m dipole-dipole IP survey

1984 UTEM survey

892275

5 cm

Form APP. 1-6

87-2696 Vol. 214

CYPRUS MINERALS

ELLIOTT BAY – E.L. 40/85

DIGHEM EM ANOMALIES AND LOCATION OF MAX MIN TRAVERSES

DRAWN BY J.B.
DRAFTSMAN T.G.D.S.
DATE Sep. 1986
REVISIONS
FILE NO.

SCALE 1:25,000 500 250 0 250 500 750 1000 METRES

FIG. 2

Ref. CM/MG86/07

15 000 N

14 000 N

13 000 N

12 000 N

11 000 N

10 000 N

9 000 N

8 000 N

7 000 N

378 000 E

380 000 E

382 000 E

5 252 000 N

5 250 000 N

5 248 000 N

5 246 000 N

9 000 E

10 000 E BASELINE

11 000 E

12 000 E

V33-1,2

TX 2

TX 1

TX 4

TX 3

V19-1

V19-2

V19-3

V19-4

V19-5

V24-4

V24-2

V24-3

V24-1

V9-3

V9-2

V9-1

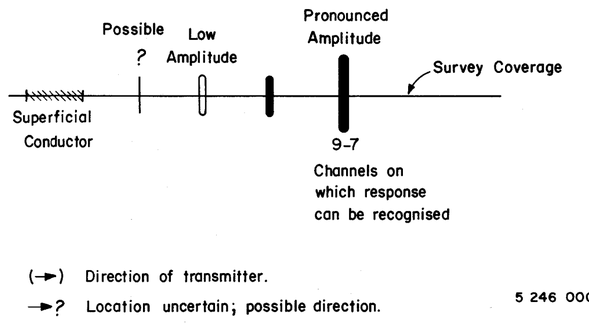
VMS

LEGEND

Surveyed by : Lamontagne Geophysics.

Date : March 1984.

ANOMALIES



(→) Direction of transmitter.

→? Location uncertain; possible direction.

(M) Migration of cross-over.

892276

5 cm

7294

87-2696 Vol. 24

CYPRUS MINERALS

ELLIOTT BAY - E.L. 40/85

UTEM INTERPRETATION

DRAWN BY : J.B.

DRAFTSMAN : T.G.D.S.

DATE Sep. 1986

REVISIONS :

–

FILE NO.

SCALE 1: 10,000 200 100 0 100 200 300 400 METRES

FIG. 5

Ref. CM/MG86/07

CYPRUS REPORT 525 APPENDIX 1

375 000 E | 380 000 E | 385 000 E | 390 000 E

52 65 000 N | 52 60 000 N | 52 55 000 N | 52 50 000 N | 52 45 000 N | 52 40 000 N

SHEET 1 2 3 4

Good altered volcanics, but northern end of zone along contact.

BHP's 'Wanderer River' Pb / Zn veining.

E.L. 40/85

Contact along edge of mag. high.

? Sulphides

Acid volcanics on western side of syncline, little explored.

Low amp. not seen on Sorell Survey.

Intermittently conductive contact.

UTEM responses but no other confirming evidence

DHEM down existing holes.

Resistive zone; coincident with and longer than Au geochem.

Polarisable zone with UTEM responses over faults.

Prominent UTEM on southern-most line but not due to VMS (No IP response)

Gradient array I.P. Survey over broad areas of acid volcanics to define pyritised host horizons.

Compilation of all geol. /geochem./geophys. in E.L. to pinpoint areas of potential possibly overlooked by Geopeko.

Use geol. /geochem. to site fixed-loop TEM Surveys to test for VMS in V3, V32, V10, V2 and V12 area. Also Au potential.

LEWIS RIVER PROSPECT

PENDERS PROSPECT

DRAKE CK. PROSPECT

MT. OSMOND

V1 V2 V3 V4 V5 V6 V7 V8 V9 V10 V11 V12 V14 V15 V16 V17 V18 V19 V20 V21 V23 V24 V25 V26 V27 V28 29W V29 V30 V31 V32 V33 V34 V35 V36

LEGEND

Unconsolidated Tertiary Gravel

18 Ordovician 'Owen' conglomerate / quartzite

CAMBRIAN

TYNDALL GROUP CORRELATES

3 Grey-black shale / siltstone

51 Coarse rhyolitic epiclastics & sandstones

DUNDAS GROUP ?

26 Greywacke, shale

MAINWARING GROUP

45 Andesitic-basaltic lava, breccia, tuff, tuffaceous shale

46 Dolimitic shale, dolomite

WESTERN VOLCANO-SEDIMENTARY SEQUENCE

52 Tuffaceous greywacke, sst, conglomerate Rhyolitic epiclastics

69 Argillaceous phyllite, siltstone, black shale

27 'Pender's Tuffs' Rhyolitic crystal tuff, minor sediment

WART HILL ACID PYROCLASTICS

48 Rhyolitic qtz. phyric lava

30 Sericitic quartz crystal tuff, lithic tuff, rhyolitic agglomerate

44 Chloritic quartz feldspar crystal lithic tuff

41 Variably highly chloritic (altered?) pyroclastics & f.g. lavas

46 Chloritic c.g. quartz phyric lava

47 Fine grained phyric dacite lava

60 Quartz pebble conglomerate, micaceous sandstone, siltstone

65 Pyritic grey-black slate, siltstone

19 STONEY CRK. PORPHYRITIC MICROGRANITE

WANDERER RIVER TUFF

38 Pink hematitic rhyolitic crystal/lithic tuff, lava

HUDSON RIVER PYROCLASTICS

40 Chloritic qtz. feldspar crystal lithic tuff, rhyolitic qtz. biotite phyric lava

58 Shale, greywacke, fine tuffaceous sediment

ELLIOT POINT PORPHYRY

22 Cse. grained quartz feldspar-biotite porphyry: probable sub-volcanic intrusive

CAMBRIAN GRANITES

19 Undifferentiated Granite

66 PRE € ARTHUR GROUP – Undifferentiated qtzte. & meta-seds

34 UNDIFFERENTIATED ACID VOLCANICS

N.B. Box numbers refer to Derwent series 19 colour pencils

Grid discrepancies occur between Geopeko maps and this plan, which is preliminary only.

Geology taken from 1:42000 & 1:10000 Geopeko plans (Herrmann, 1983).

V19 Geopeko 'Voyager' Prospect location

LEGEND

Dighem survey : Flown for Cyprus.

Date : January 1986.

Dighem Anomalies of Interest.

Surficial sources.

Broad conductive unit.

Bedrock conductor.

Definite anomaly

Possible anomaly

Grades of anomalies not differentiated.

13 Area recommended for further work

892277

5 cm

87-2696 6/2/4

7295

CYPRUS MINERALS

ELLIOTT BAY - E.L. 40/85

AREAS RECOMMENDED FOR FURTHER WORK

DRAWN BY : J.B.

DRAFTSMAN: T.G.D.S.

DATE : Sep. 1986

REVISIONS :

FILE NO.

SCALE 1:25,000 500 250 0 250 500 750 1000 METRES

FIG. 7

Ref. CM/MG86/07

CYPRUS REPORT 525 APPENDIX 1

892278

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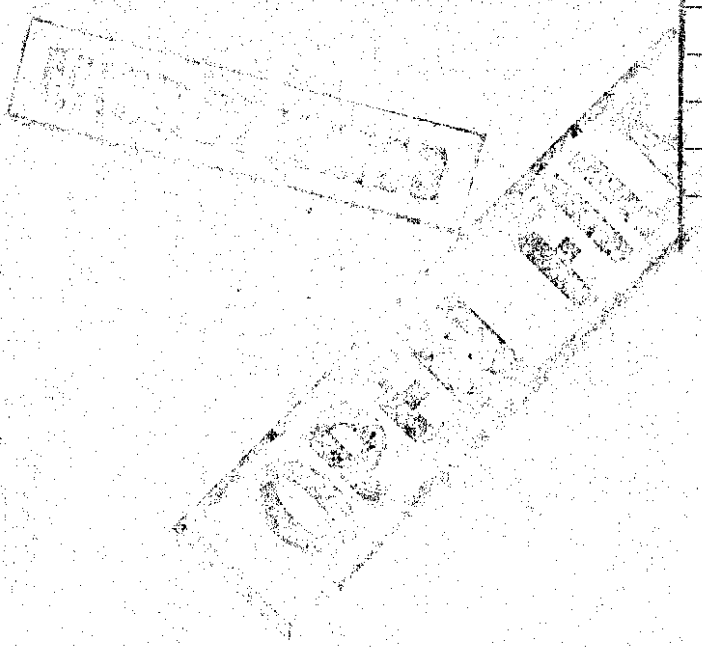

MINES
File Ref. EL 40/85
19 AUG 1987
Doc. Ref.

Action Officer	Initials
LETTER	
17.8.'87	
REFERS	
Resubmit to	Date

DISTRIBUTION

- Denver
- Mines Department
- Sydney
- Field
- Spare 1
- Spare 2
- Poseidon
- Arimco

APPENDIX 7

ANALYTICAL RESULT SHEETS

892280

7.5.08.04168

AR E1987 Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

E 00251 | DN 4817,8,9

24/01/87 | ASAP

28	27/02/87	1	328

Various	RC	Prep: 005,017						Cu,Pb,Zn,Ag/101,As/114			
Various	RC							Au/313			
171662	RC							Mo/101			
171451/65,171551/65	SO	Prep: 006,9807,013,007						Cu,Cu+,Pb,Pb+,Zn,Zn+,Ag,Ag+/101,As,As+/114,Wght			
171451/65,171551/65	SO							Au,Au+,AuR,AuR+/329			

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES — ANALYSIS — PREPARATION — ANALYSIS — METHOD

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892281

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

See page 15 for Sample Descriptions

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	1 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	171276	10	10	15	0.5	30	<0.008	–	–	–
2	171277	2625	47450	350	186.0	27500	1.070	–	–	–
3	171278	200	525	25	1.0	700	0.010	–	–	–
4	171279	80	80	25	0.5	320	<0.008	–	–	–
5	171280	10025	4225	275	67.0	5700	0.520	–	–	–
	171281	1100	45	95	4.0	150	0.020	–	–	–
7	[redacted]								–	–
8	[redacted]								–	–
9	[redacted]								–	–
10	[redacted]								–	–
11	[redacted]								–	–
12	[redacted]								–	–
13	[redacted]								–	–
14	[redacted]								–	–
15	[redacted]								–	–
16	[redacted]								–	[redacted]
17	[redacted]								–	–
18	[redacted]								–	–
19	[redacted]								–	–
20	[redacted]								–	–
21	[redacted]								–	–
22	[redacted]								–	–
23	[redacted]								–	–
24	[redacted]								–	–
25	[redacted]								–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	4 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	[redacted]	[redacted]							–	<0.01
2	[redacted]								–	–
3	[redacted]								–	–
4	[redacted]								–	–
5	[redacted]								–	–
	[redacted]								–	–
7	[redacted]								–	–
8	[redacted]								–	–
9	[redacted]								–	–
10	[redacted]								–	–
11	[redacted]								–	<0.01
12	[redacted]								–	–
13	[redacted]								–	–
14	[redacted]								0.030	–
15	[redacted]								–	–
16	[redacted]								–	–
17	[redacted]								–	–
18	[redacted]								–	–
19	[redacted]								–	–
20	[redacted]								–	–
21	[redacted]								–	<0.01
22	[redacted]								–	–
23	[redacted]								–	–
24	171393	[redacted] 150	<5	75	<0.5	<1	<0.008	<0.01	–	–
25	171394	40	<5	25	1.0	1	<0.008	<0.01	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	05/03/87	E 00251	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	171395	95	<5	70	<0.5	2	<0.008	-	-	-
2	171396	80	<5	65	0.5	<1	<0.008	-	-	-
3	171397	70	<5	100	<0.5	<1	0.010	-	-	-
4	171398	215	<5	90	<0.5	2	<0.008	-	-	-
5	171399	140	<5	80	<0.5	5	<0.008	-	-	-
6	171400	65	10	75	0.5	<1	<0.008	-	-	-
7	171415	15	15	10	<0.5	12	<0.008	-	-	-
8	171416	145	10	40	<0.5	12	<0.008	-	-	-
9	171417	70	15	45	<0.5	10	<0.008	-	-	-
10	[redacted]							-	-	-
11	[redacted]							-	-	-
12	171453	5	<5	15	<0.5	2	<0.008	-	-	-
13	171454	5	<5	10	0.5	2	<0.008	-	-	-
14	171455	5	<5	10	<0.5	2	<0.008	-	-	-
15	171456	10	<5	25	<0.5	4	<0.008	-	-	-
16	171457	5	<5	25	<0.5	2	<0.008	-	-	-
17	171458	5	10	10	<0.5	1	<0.008	-	-	-
18	171459	15	5	10	<0.5	2	0.130	-	-	-
19	171460	10	<5	15	<0.5	1	<0.008	-	-	-
20	171461	10	<5	15	<0.5	5	<0.008	-	-	-
21	[redacted]							-	-	-
22	[redacted]							-	-	-
23	[redacted]							-	-	-
24	[redacted]							-	-	-
25	[redacted]							-	-	-

Results in ppm unless otherwise specified
T = element present: but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	6 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	-	-	-
2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	-	[redacted]	-
3	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	-	-	-
4	171490	<5	20	30	0.5	<1	0.690	-	-	-
5	171491	5	20	40	1.0	<1	22.000	-	5.430	-
	171492	15	<5	30	1.0	<1	1.080	-	4.690	-
7	171493	<5	40	20	14.0	<1	<0.008	-	-	-
8	171494	<5	10	30	1.0	<1	<0.008	-	-	-
9	171495	<5	<5	5	<0.5	1	<0.008	-	-	-
10	171496	<5	<5	10	0.5	1	0.040	-	0.030	-
11	171497	<5	<5	20	1.0	3	0.400	-	-	-
12	171498	<5	15	20	0.5	<1	1.720	-	-	-
13	[redacted]	[redacted]						-	-	-
14	[redacted]	[redacted]								-
15	171501	SNR	SNR	SNR	SNR	SNR	IS	-	-	-
16	171502	15	<5	45	0.5	2	<0.008	<0.01	-	-
17	171503	45	<5	35	<0.5	5	<0.008	<0.01	-	-
18	171504	35	<5	110	<0.5	4	<0.008	<0.01	-	-
19	171505	10	<5	15	1.0	<1	<0.008	<0.01	-	-
20	171506	65	90	235	0.5	8	<0.008	<0.01	-	-
21	171507	5	<5	40	<0.5	<1	<0.008	<0.01	-	-
22	171508	70	<5	70	0.5	3	<0.008	<0.01	-	-
23	171509	340	30	50	1.0	9	<0.008	<0.01	-	-
24	171510	10	<5	20	0.5	12	<0.008	<0.01	-	<0.01
25	171511	30	<5	60	<0.5	6	<0.008	<0.01	-	-

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	7 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	171512	65	20	120	1.0	18	<0.008	<0.01	–	–
2	171513	65	10	120	1.0	4	<0.008	<0.01	–	–
3	171514	25	<5	60	<0.5	<1	<0.008	<0.01	–	–
4	171515	20	10	55	0.5	<1	<0.008	<0.01	–	–
5	171516	15	<5	55	1.0	<1	<0.008	<0.01	–	–
6	171517	10	<5	30	0.5	<1	<0.008	<0.01	–	–
7	171518	10	<5	50	<0.5	1	<0.008	<0.01	–	–
8	171519	45	<5	85	<0.5	9	<0.008	<0.01	–	–
9	171520	15	<5	75	0.5	24	<0.008	<0.01	–	<0.01
10	171521	10	15	50	0.5	7	0.020	<0.01	–	–
11	171522	5	10	35	<0.5	2	<0.008	<0.01	–	–
12	171523	35	40	70	0.5	16	<0.008	<0.01	–	–
13	171524	45	35	190	0.5	33	<0.008	<0.01	–	–
14	171525	15	20	45	<0.5	7	<0.008	<0.01	–	–
15	171526	45	25	65	1.0	16	<0.008	<0.01	–	–
16	171527	5	20	5	1.0	5	0.010	<0.01	–	–
17	171528	5	5	5	<0.5	2	<0.008	<0.01	–	–
18	171529	5	5	5	0.5	2	<0.008	<0.01	–	–
19	171530	5	10	5	<0.5	2	<0.008	<0.01	–	<0.01
20	171531	5	5	<5	<0.5	<1	<0.008	<0.01	–	–
21	171532	5	10	5	<0.5	2	<0.008	<0.01	–	–
22	171533	5	5	10	<0.5	5	<0.008	<0.01	–	–
23	171534	5	10	15	0.5	3	<0.008	<0.01	–	–
24	171535	5	<5	<5	<0.5	2	<0.008	<0.01	–	–
25	171536	10	15	10	<0.5	<1	<0.008	<0.01	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	8 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	171537	5	<5	<5	<0.5	<1	<0.008	<0.01	–	–
2	171538	10	<5	<5	<0.5	3	<0.008	<0.01	–	–
3	171539	25	30	35	0.5	9	<0.008	<0.01	–	–
4	171540	15	10	5	<0.5	3	<0.008	<0.01	–	<0.01
5	171541	5	5	<5	<0.5	2	<0.008	<0.01	–	–
	171542	5	<5	<5	<0.5	2	<0.008	<0.01	–	–
7	171543	<5	<5	<5	<0.5	<1	<0.008	<0.01	–	–
8	171544	55	15	45	0.5	<1	<0.008	<0.01	–	–
9	171545	25	20	50	0.5	1	<0.008	<0.01	–	–
10	171546	55	30	50	0.5	2	<0.008	<0.01	–	–
11	171547	55	15	65	0.5	12	<0.008	<0.01	–	–
12	171548	40	10	60	<0.5	4	<0.008	<0.01	–	–
13	171549	25	15	55	<0.5	3	<0.008	<0.01	–	–
14	171550	10	10	50	<0.5	5	<0.008	<0.01	–	<0.01
15	171551	<5	<5	5	<0.5	2	<0.008	–	–	–
16	171552	<5	<5	10	<0.5	2	<0.008	–	–	–
17	171553	<5	<5	5	<0.5	2	<0.008	–	–	–
18	171554	<5	<5	10	<0.5	2	<0.008	–	–	–
19	171555	<5	<5	15	<0.5	1	<0.008	–	–	–
20	171556	5	5	10	<0.5	2	<0.008	–	–	–
21	171557	5	<5	5	<0.5	2	<0.008	–	–	–
22	171558	5	20	10	<0.5	19	<0.008	–	–	–
23	171559	5	<5	5	<0.5	5	<0.008	–	–	–
24	171560	10	15	335	<0.5	9	<0.008	–	–	–
25	171561	5	5	5	<0.5	5	<0.008	–	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	9 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	171562	5	<5	5	0.5	2	<0.008	-	-	-
2	171563	5	<5	5	1.0	5	<0.008	-	-	-
3	171564	5	<5	10	1.0	5	0.080	-	-	-
4	171565	5	30	10	0.5	10	<0.008	-	-	-
5	171600	-	-	-	-	-	-	-	-	-
6	171601	<5	<5	20	2.0	1	<0.008	-	-	-
7	171602	<5	<5	5	<0.5	<1	<0.008	-	-	-
8	171603	<5	<5	5	1.5	1	<0.008	-	-	-
9	171604	<5	<5	5	0.5	1	<0.008	-	-	-
10	171605	<5	<5	5	<0.5	1	<0.008	-	-	-
11	171606	<5	<5	15	1.5	1	<0.008	-	-	-
12	171607	<5	<5	5	1.0	<1	<0.008	-	-	-
13	171608	<5	<5	10	1.0	16	<0.008	-	-	-
14	171609	<5	<5	5	3.0	4	<0.008	-	-	-
15	171610	<5	<5	10	2.0	9	<0.008	-	-	-
16	171611	<5	<5	10	1.5	14	<0.008	-	-	-
17	171612	5	<5	10	0.5	13	<0.008	-	-	-
18	171613	5	<5	10	0.5	14	<0.008	-	-	-
19	171614	<5	30	20	2.0	31	<0.008	-	-	-
20	171651	70	35	100	0.5	45	<0.008	-	-	-
21	171652	150	115	95	2.0	170	0.020	-	-	-
22	171653	3700	155	220	2.5	110	0.020	-	-	-
23	171654	445	200	340	1.5	22	<0.008	-	-	-
24	171655	1500	90	160	1.0	13	<0.008	-	-	-
25	171656	42775	75	675	<0.5	15	<0.008	-	-	-

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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892288

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	10 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	171657	3400	640	135	6.5	6	0.050	–	–	–
2	171658	140	360	1300	1.0	15	<0.008	–	–	–
3	171659	22425	175	300	<0.5	26	<0.008	–	–	–
4	171660	11875	2825	5850	28.0	400	<0.008	–	–	–
5	171661	7750	2750	1050	5.0	88	0.020	–	–	–
	171662	2100	2650	5100	7.5	400	0.020	–	–	–
7	171663	180	445	155	4.5	250	0.010	–	–	–
8	171664	310	585	190	2.5	3800	0.040	–	–	–
9	171665	1125	6600	825	30.0	4700	0.140	–	–	–
10	171666	395	145	65	2.0	800	0.030	–	–	–
11	171667	575	1225	50	12.0	15500	1.090	–	–	–
12	171668	20	85	20	1.0	300	<0.008	–	–	–
13	171669	325	1950	25	21.0	4900	0.030	–	–	–
14	171670	325	795	100	3.5	150	<0.008	–	–	–
15	171671	2200	75	1875	38.0	12500	0.790	–	–	–
16	171672	505	2000	240	5.5	2100	0.140	–	–	–
17	171673	780	7400	555	7.5	8900	0.590	–	–	–
18	171674	655	3150	830	4.5	5500	0.650	–	–	–
19	171675	230	340	65	1.0	380	<0.008	–	–	–
20	171676	275	795	220	1.5	700	<0.008	–	–	–
21	171677	1450	875	900	28.0	8300	1.650	–	–	–
22	171678	560	215	900	3.5	3400	0.130	–	–	–
23	171679	725	100	25	35.0	1100	0.210	–	–	–
24	171680	4500	9450	525	276.0	14500	2.630	–	–	–
25	171681	2425	8750	950	8.0	14500	4.720	–	–	–

Results in ppm unless otherwise specified
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X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	11 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	171682	500	2475	50	32.0	9900	0.370	-	-	-
2	171683	510	140	95	3.0	880	0.030	-	-	-
3	171684	475	1275	45	201.0	2400	0.100	-	-	-
4	171685	900	4200	500	2.0	9500	0.980	-	-	-
5	171686	80	740	200	2.0	200	<0.008	-	-	-
	171687	20	5	10	<0.5	59	<0.008	-	-	-
7	171688	5	<5	10	<0.5	12	<0.008	-	-	-
8	171689	5	15	235	<0.5	12	<0.008	-	-	-
9	171690	10	15	40	<0.5	17	<0.008	-	-	-
10	171691	145	150	155	<0.5	10	<0.008	-	-	-
11	171751	5	<5	5	0.5	4	0.170	-	-	-
12	171752	5	<5	5	<0.5	2	<0.008	-	-	-
13	171753	5	<5	<5	1.0	2	<0.008	-	-	-
14	171754	5	<5	10	1.0	1	<0.008	-	-	-
15	171755	5	<5	10	0.5	<1	<0.008	-	-	-
16	171756	5	<5	10	0.5	<1	<0.008	-	-	-
17	171757	5	<5	10	0.5	<1	<0.008	-	-	-
18	171758	5	25	10	0.5	19	<0.008	-	-	-
19	171759	5	<5	5	0.5	5	<0.008	-	-	-
20	171760	10	20	375	1.0	8	<0.008	-	-	-
21	171761	5	5	5	1.0	2	<0.008	-	-	-
22	171851	10	20	20	0.5	3	<0.008	<0.01	-	-
23	171852	5	10	10	0.5	<1	<0.008	<0.01	-	-
24	171853	5	10	5	<0.5	3	<0.008	<0.01	-	-
25	171854	5	10	5	<0.5	<1	<0.008	<0.01	-	-

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	12 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	171855	5	5	5	<0.5	<1	<0.008	<0.01	-	-
2	171856	5	10	5	<0.5	1	<0.008	<0.01	-	-
3	171857	10	<5	5	<0.5	1	<0.008	<0.01	-	-
4	171858	5	10	5	<0.5	3	<0.008	<0.01	-	-
5	171859	5	10	5	<0.5	1	<0.008	<0.01	-	<0.01
6	171860	5	10	5	<0.5	1	<0.008	<0.01	-	-
7	171861	10	5	10	0.5	2	<0.008	<0.01	-	-
8	171862	5	5	5	0.5	4	<0.008	<0.01	-	-
9	171863	5	<5	55	<0.5	1	<0.008	<0.01	-	-
10	171864	5	<5	15	1.0	1	<0.008	<0.01	-	-
11	171865	5	<5	15	0.5	1	<0.008	<0.01	-	-
12	171866	5	<5	20	0.5	2	<0.008	<0.01	-	-
13	171867	10	<5	15	0.5	9	<0.008	<0.01	-	-
14	171868	5	<5	10	0.5	2	<0.008	<0.01	-	-
15	171869	10	<5	15	<0.5	1	<0.008	<0.01	-	<0.01
16	171870	5	<5	10	<0.5	2	<0.008	<0.01	-	-
17	180544	1750	735	380	<0.5	1800	0.020	-	-	-
18	180545	6025	17750	200	383.0	30500	2.030	-	-	-
19	180546	8875	925	325	15.0	640	0.250	-	-	-
20	180547	740	325	410	4.0	28	0.010	-	-	-
21	180549	65	10	100	<0.5	31	<0.008	-	-	-
22	180550	15	<5	45	<0.5	17	<0.008	-	-	-
23	180551	30	<5	5	<0.5	16	<0.008	-	-	-
24	180552	30	<5	70	<0.5	8	<0.008	-	-	-
25	180553	5	<5	50	<0.5	9	<0.008	-	-	-

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	13 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	180554	485	<5	85	<0.5	7	<0.008	-	-	-
2	180555	185	5	90	<0.5	7	<0.008	-	-	-
3	180556	140	25	375	<0.5	2	<0.008	-	-	-
4	180557	60	<5	15	<0.5	3	<0.008	-	-	-
5	180558	325	5	120	<0.5	5	<0.008	-	-	-
6	180559	80	5	75	<0.5	2	<0.008	-	-	-
7	180560	15	<5	85	<0.5	1	<0.008	-	-	-
8	180561	130	<5	50	<0.5	1	<0.008	-	-	-
9	180562	35	<5	40	<0.5	<1	<0.008	-	-	-
10	180563	65	<5	60	<0.5	1	<0.008	-	-	-
11	180564	85	5	25	<0.5	5	<0.008	-	-	-
12	180565	55	30	155	<0.5	36	<0.008	-	-	-
13	180566	45	5	55	<0.5	3	<0.008	-	-	-
14	180567	25	10	115	<0.5	2	<0.008	-	-	-
15	180568	5	<5	30	<0.5	7	<0.008	-	-	-
16	180569	1650	70	145	<0.5	800	0.050	-	-	-
17	180570	20425	200	475	24.0	250	0.330	-	-	-
18	180571	2150	235	170	7.0	410	0.220	-	-	-
19	180572	3100	1750	325	24.0	2400	0.450	-	-	-
20	180573	1000	285	405	1.5	600	0.030	-	-	-
21	180574	1300	350	285	1.0	190	0.030	-	-	-
22	180575	55	125	40	<0.5	22500	<0.008	-	-	-
23	180576	2250	805	525	9.5	1300	0.070	-	-	-
24	180577	6900	955	650	180.0	200	0.050	-	-	-
25	180578	6750	850	510	6.5	1500	0.050	-	-	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	14 OF 28

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au	AuRpt	AuRpt
1	180579	1350	60	115	3.5	700	<0.008	-	-	-
2	180580	175	355	130	27.5	2800	<0.008	-	-	-
3	180582	40	15	135	<0.5	51	<0.008	-	-	-
4										
5										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19	NB: AuRpt 171277=1.08, 171666=0.01, 180569=0.04, 180579=0.03									
20	Result for Sample 171400/2 Cu=40, Pb=20, Zn=70, Ag=<0.5									
21	SNR Denotes Sample Not Received, DTF Denotes Data to Follow									
22	IS Denotes Insufficient sample. More Au Checks to follow.									
23	DETECTION	5	5	5	0.5	1	0.008	0.01	0.008	0.01
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	114	309	329	309	329

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	15 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght	
1	171276	–	175.7	Panned Concentrate Voyager 12.
2	171277	–	–	
3	171278	–	–	Rock Chip Voyager 12.
4	171279	–	–	
5	171280	–	–	
6	171281	–	–	Rock Chip Voyager 2.
7	[redacted]	–	–	
8	[redacted]	–	–	
9	[redacted]	–	–	
10	[redacted]	–	–	Soil Samples
11	[redacted]	–	–	
12	[redacted]	–	–	Line 2
13	[redacted]	–	–	
14	[redacted]	–	–	Wanderer North.
15	[redacted]	–	–	
16	[redacted]	–	–	
17	[redacted]	–	–	
18	[redacted]	–	–	
19	[redacted]	–	–	
20	[redacted]	–	–	
21	[redacted]	–	–	
22	[redacted]	–	–	
23	[redacted]	–	–	
24	[redacted]	–	–	
25	[redacted]	–	–	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	18 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght							
1	[redacted]	–	–							
2	[redacted]	–	–							
3	[redacted]	–	–							
4	[redacted]	–	–							
5	[redacted]	–	–		[redacted]					
6	[redacted]	–	–							
7	[redacted]	–	–		[redacted]					
8	[redacted]	–	–							
9	[redacted]	–	–		[redacted]					
10	[redacted]	–	–							
11	[redacted]	–	–							
12	[redacted]	–	–							
13	[redacted]	–	–							
14	[redacted]	–	–							
15	[redacted]	–	–							
16	[redacted]	–	–							
17	[redacted]	–	–							
18	[redacted]	–	–							
19	[redacted]	–	–							
20	[redacted]	–	–							
21	[redacted]	–	–							
22	[redacted]	–	–							
23	[redacted]	–	–							
24	171393	–	–	Soil Samples Line 6						
25	171394	–	–	Wanderer South.						

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	19 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght	
1	171395	–	–	
2	171396	–	–	
3	171397	–	–	Soil Samples
4	171398	–	–	
5	171399	–	–	Line 6
6	171400	–	–	
7	171415	–	–	Wanderer South.
8	171416	–	–	
9	171417	–	–	
10	[redacted]	–	[redacted]	[redacted]
11	[redacted]	–	[redacted]	[redacted]
12	171453	–	236.9	-80 # Stream Sediment
13	171454	–	319.3	Waterloo Creek.
14	171455	–	309.3	
15	171456	–	94.6	-80 # Stream Sediment
16	171457	–	780.3	
17	171458	–	660.0	Wanderer South
18	171459	–	371.5	
19	171460	–	450.0	
20	171461	–	233.4	
21	[redacted]	–	[redacted]	[redacted]
22	[redacted]	–	[redacted]	
23	[redacted]	–	[redacted]	[redacted]
24	[redacted]	–	[redacted]	
25	[redacted]	–	[redacted]	[redacted]

Results in ppm unless otherwise specified.
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	20 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght		
1	[redacted]	–	[redacted]		[redacted]
2	[redacted]	–	[redacted]		[redacted]
3	[redacted]	–	[redacted]		
4	171490	–	64.5		
5	171491	9.970	87.6		Panned Concentrates
6	171492	–	160.3		
7	171493	–	259.0		Wanderer South.
8	171494	–	277.1		
9	171495	–	60.5		
10	171496	–	55.7		
11	171497	–	47.9		Panned Concentrates.
12	171498	–	45.0		Waterloo Creek.
13	[redacted]	–	[redacted]		[redacted]
14	[redacted]	–	[redacted]		[redacted]
15	171501	–	–		
16	171502	–	–		
17	171503	–	–		Soil Samples.
18	171504	–	–		
19	171505	–	–		Line 6.
20	171506	–	–		
21	171507	–	–		Wanderer South.
22	171508	–	–		
23	171509	–	–		
24	171510	–	–		
25	171511	–	–		

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	21 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght							
1	171512	–	–							
2	171513	–	–							
3	171514	–	–							
4	171515	–	–							
5	171516	–	–							
.	171517	–	–							
7	171518	–	–		Soil Samples					
8	171519	–	–							
9	171520	–	–							
10	171521	–	–		Line 6					
11	171522	–	–							
12	171523	–	–		Wanderer South.					
13	171524	–	–							
14	171525	–	–							
15	171526	–	–							
16	171527	–	–							
17	171528	–	–							
18	171529	–	–							
19	171530	–	–							
20	171531	–	–							
21	171532	–	–							
22	171533	–	–							
23	171534	–	–							
24	171535	–	–							
25	171536	–	–							

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	22 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght.							
1	171537	–	–							
2	171538	–	–							
3	171539	–	–							
4	171540	–	–		Soil Samples					
5	171541	–	–							
6	171542	–	–		Line 6					
7	171543	–	–							
8	171544	–	–		Wanderer South.					
9	171545	–	–							
10	171546	–	–							
11	171547	–	–							
12	171548	–	–							
13	171549	–	–							
14	171550	–	–							
15	171551	–	122.6							
16	171552	–	143.6							
17	171553	–	120.8		-80# Stream Sediment					
18	171554	–	212.5							
19	171555	–	290.0		Porphyry Contact.					
20	171556	–	149.7							
21	171557	–	148.6							
22	171558	–	102.9							
23	171559	–	151.6		-80# Stream Sediment					
24	171560	–	265.4		Voyager 2.					
25	171561	–	155.8							

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	23 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght		
1	171562	–	105.2		-80# Stream Sediment
2	171563	–	122.2		
3	171564	–	64.8		Voyager 2.
4	171565	–	71.8		
5	171600	–	–		-80# Stream Sediment Porphyry Contact.
6	171601	–	189.0		
7	171602	–	187.9		
8	171603	–	246.6		Panned Concentrates
9	171604	–	295.7		
10	171605	–	331.6		Porphyry Contact.
11	171606	–	288.1		
12	171607	–	258.8		
13	171608	–	254.6		
14	171609	–	381.0		
15	171610	–	248.7		Panned Concentrates
16	171611	–	316.4		
17	171612	–	359.6		Voyager 2
18	171613	–	349.8		
19	171614	–	269.5		Panned Concentrate Voyager 2.
20	171651	–	–		
21	171652	–	–		Rock Chip
22	171653	–	–		
23	171654	–	–		Elliott Bay
24	171655	–	–		
25	171656	–	–		

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	24 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght							
1	171657	—	—							
2	171658	—	—		Rock Chip					
3	171659	—	—							
4	171660	—	—		Elliott Bay					
5	171661	—	—							
6	171662	—	—							
7	171663	—	—							
8	171664	—	—							
9	171665	—	—							
10	171666	—	—							
11	171667	—	—		Rock Chip					
12	171668	—	—							
13	171669	—	—		Voyager 12.					
14	171670	—	—							
15	171671	—	—							
16	171672	—	—							
17	171673	—	—							
18	171674	—	—							
19	171675	—	—							
20	171676	—	—							
21	171677	—	—							
22	171678	—	—							
23	171679	—	—							
24	171680	—	—							
25	171681	—	—							

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	25 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght							
1	171682	—	—							
2	171683	—	—							
3	171684	—	—		Rock Chip					
4	171685	—	—							
5	171686	—	—		Voyager 12.					
6	171687	—	—							
7	171688	—	—							
8	171689	—	—							
9	171690	—	—							
10	171691	—	—							
11	171751	—	—							
12	171752	—	—							
13	171753	—	—							
14	171754	—	—							
15	171755	—	—		Soil Samples					
16	171756	—	—							
17	171757	—	—							
18	171758	—	—		Voyager 12.					
19	171759	—	—							
20	171760	—	—							
21	171761	—	—							
22	171851	—	—							
23	171852	—	—		Soil Samples			Line 6		
24	171853	—	—		Wanderer South.					
25	171854	—	—							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	26 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght							
1	171855	–	–							
2	171856	–	–							
3	171857	–	–		Soil Samples.					
4	171858	–	–							
5	171859	–	–		Line 6					
6	171860	–	–							
7	171861	–	–		Wanderer South.					
8	171862	–	–							
9	171863	–	–							
10	171864	–	–							
11	171865	–	–							
12	171866	–	–							
13	171867	–	–		Soil Samples.					
14	171868	–	–		Line 5					
15	171869	–	–		Wanderer South.					
16	171870	–	–							
17	180544	–	–		Rock Chip					
18	180545	–	–		Voyager 12					
19	180546	–	–							
20	180547	–	–		Rock Chip	Voyager 3				
21	180549	–	–		Rock Chip	Voyager 16				
22	180550	–	–							
23	180551	–	–		Rock Chip					
24	180552	–	–							
25	180553	–	–		Veridian	Point				

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	27 of 28

TUBE No.	SAMPLE No.	AuChk	Wght							
1	180554	–	–							
2	180555	–	–							
3	180556	–	–		Rock Chip.					
4	180557	–	–							
5	180558	–	–							
6	180559	–	–		Veridian Point.					
7	180560	–	–							
8	180561	–	–							
9	180562	–	–							
10	180563	–	–							
11	180564	–	–							
12	180565	–	–							
13	180566	–	–							
14	180567	–	–							
15	180568	–	–							
16	180569	–	–							
17	180570	–	–							
18	180571	–	–		Rock Chip					
19	180572	–	–							
20	180573	–	–		Voyager R.					
21	180574	–	–							
22	180575	–	–							
23	180576	–	–							
24	180577	–	–							
25	180578	–	–							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04168	03/03/87	E 00251	28 OF 28

TUBE No.	SAMPLE No.	AuChk	Wght							
1	180579	–	–		Rock	Chip	Voyager	12		
2	180580	–	–		Rock	Chip				
3	180582	–	–		Voyager 2					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19	NB: AuRpt	171277=1.08, 171666=0.01, 180569=0.04, 180579=0.03								
20	Result for Sample 171400/2 Cu=40, Pb=20, Zn=70, Ag=<0.5									
21	SNR Denotes Sample Not Received, DTF Denotes Data to Follow									
22	IS Denotes Insufficient sample. More Au Checks to follow.									
23	DETECTION	0.008	0.1							
24	UNITS	PPM	GMS							
25	METHOD	309	199							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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892305

7.5.08.04189

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

E 00252	D/N 4820,1,2
30/01/87	ASAP

16	05/03/87	1	181

Various		RC Prep: 006,017					Cu,Pb,Zn,Ag/101,As/114		
Various		RC					Au/313		
Various		SD Prep: 005,018					Cu,Pb,Zn,Ag/101,As/114		
Various		SD					Au,AuRpt/329		
Various		PC Prep: 006,018					Cu,Pb,Zn,Ag/101,As/114		

REMARKS

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C. Torrey
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Zeehan
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892306

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ANALYTICAL DATA

See page 9 for Sample Descriptions

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	1 OF 16

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171282	255	215	–	560	1.0	–	83	–	0.010
2	171283	1950	10	–	505	<0.5	–	94	–	0.065
3	171284	26500	220	–	940	–	27	450	–	0.675
4	171285	9350	310	–	1800	–	20	550	–	0.200
5	171286	435	70	–	630	1.5	–	31	–	0.020
6	171287	590	<5	–	160	2.5	–	6	–	<0.005
7	171288	30	<5	–	35	1.0	–	10	–	<0.005
8	171289	15	5	–	50	0.5	–	2	–	<0.005
9	171290	25	<5	–	10	1.0	–	7	–	<0.005
10	171291	30	<5	–	20	1.5	–	32	–	0.040
11	[redacted]									
12	171430	45	<5	–	160	1.0	–	7	–	<0.005
13	171431	40	<5	–	85	0.5	–	4	–	<0.005
14	171432	40	<5	–	95	1.0	–	4	–	<0.005
15	171434	105	<5	–	55	0.5	–	1	–	<0.005
	171435	45	<5	–	150	1.0	–	3	–	<0.005
17	171436	45	10	–	35	0.5	–	10	–	<0.005
18	171762	10	20	–	20	0.5	–	7	<0.008	–
19	171763	<5	<5	–	20	<0.5	–	2	<0.008	–
20	171764	10	20	–	20	2.5	–	2	<0.008	–
21	171765	10	15	–	25	1.5	–	2	<0.008	–
22	171766	<5	15	–	20	2.0	–	2	<0.008	–
23	171767	5	25	–	40	<0.5	–	2	<0.008	–
24	171768	<5	<5	–	15	0.5	–	2	<0.008	–
25	171769	5	<5	–	15	1.5	–	2	<0.008	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	2 OF 16

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171770	10	10	–	20	<0.5	–	2	<0.008	–
2	171771	10	15	–	20	0.5	–	2	<0.008	–
3	171772	5	15	–	20	0.5	–	2	<0.008	–
4	171773	<5	<5	–	20	<0.5	–	2	<0.008	–
5	171774	15	<5	–	20	0.5	–	2	<0.008	–
6	171775	10	<5	–	15	0.5	–	2	<0.008	–
7	171776	10	<5	–	20	1.0	–	2	<0.008	–
8	171777	50	50	–	25	1.0	–	40	<0.008	–
9	171778	70	185	–	110	0.5	–	50	<0.008	–
10	171779	140	300	–	40	1.0	–	67	<0.008	–
11	171780	10	20	–	15	0.5	–	2	<0.008	–
12	171781	15	<5	–	10	1.0	–	5	<0.008	–
13	171782	<5	<5	–	15	2.0	–	5	<0.008	–
14	171783	<5	<5	–	15	1.0	–	5	<0.008	–
15	171784	10	<5	–	20	1.0	–	7	<0.008	–
	171785	20	15	–	20	1.0	–	130	<0.008	–
17	171786	<5	<5	–	15	1.0	–	2	<0.008	–
18	171787	5	5	–	15	0.5	–	2	<0.008	–
19	171788	10	25	–	20	1.0	–	2	<0.008	–
20	171789	<5	15	–	15	0.5	–	2	<0.008	–
21	171790	<5	10	–	20	0.5	–	2	<0.008	–
22	171791	10	10	–	20	1.0	–	2	<0.008	–
23	171792	<5	15	–	20	1.5	–	2	<0.008	–
24	171793	<5	10	–	15	1.5	–	2	<0.008	–
25	171794	<5	<5	–	15	1.0	–	2	<0.008	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	3 OF 16

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171795	10	<5	–	15	1.0	–	2	<0.008	–
2	171796	5	<5	–	20	0.5	–	2	<0.008	–
3	171797	5	<5	–	15	<0.5	–	2	<0.008	–
4	171798	<5	15	–	15	1.5	–	2	<0.008	–
5	171799	<5	10	–	20	<0.5	–	2	<0.008	–
6	171800	<5	10	–	15	1.0	–	2	<0.008	–
7	171801	65	–	1675	35	1.0	–	15	<0.008	–
8	171802	5	5	–	20	<0.5	–	5	<0.008	–
9	171803	<5	10	–	30	<0.5	–	5	<0.008	–
10	171804	5	30	–	20	<0.5	–	5	<0.008	–
11	171805	<5	<5	–	15	<0.5	–	2	<0.008	–
12	171806	<5	<5	–	15	0.5	–	3	<0.008	–
13	171807	5	<5	–	20	<0.5	–	2	<0.008	–
14	171808	10	20	–	20	<0.5	–	27	0.110	–
15	171809	10	40	–	20	0.5	–	160	<0.008	–
	171810	5	5	–	20	0.5	–	3	<0.008	–
17	171811	10	10	–	30	1.0	–	10	<0.008	–
18	171812	5	<5	–	20	<0.5	–	5	<0.008	–
19	171813	5	<5	–	20	<0.5	–	5	<0.008	–
20	171814	20	15	–	15	0.5	–	130	<0.008	–
21	171815	10	35	–	20	1.0	–	20	0.020	–
22	171816	10	10	–	20	<0.5	–	36	0.020	–
23	171817	20	10	–	20	<0.5	–	95	<0.008	–
24	171818	25	10	–	20	0.5	–	57	<0.008	–
25	171819	15	10	–	15	0.5	–	13	<0.008	–

Results in ppm unless otherwise specified
Y = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	4 OF 16

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171820	5	25	–	15	0.5	–	8	<0.008	–
2	171821	15	50	–	25	0.5	–	62	0.010	–
3	171822	<5	<5	–	20	0.5	–	5	<0.008	–
4	171823	70	40	–	35	<0.5	–	35	<0.008	–
5	171824	15	30	–	15	1.0	–	4	<0.008	–
6	171825	5	<5	–	15	<0.5	–	5	<0.008	–
7	171826	5	<5	–	15	0.5	–	3	<0.008	–
8	171827	<5	<5	–	20	0.5	–	4	<0.008	–
9	171828	<5	<5	–	15	1.0	–	3	<0.008	–
10	171829	<5	<5	–	10	<0.5	–	3	<0.008	–
11	171830	<5	<5	–	20	<0.5	–	2	<0.008	–
12	171831	<5	<5	–	15	<0.5	–	3	<0.008	–
13	171832	5	<5	–	15	<0.5	–	2	<0.008	–
14	171833	5	<5	–	15	0.5	–	4	<0.008	–
15	171834	<5	<5	–	10	0.5	–	2	<0.008	–
	171835	<5	<5	–	15	1.0	–	3	<0.008	–
17	171836	5	<5	–	20	2.0	–	3	<0.008	–
18	171837	<5	<5	–	15	1.0	–	3	0.010	–
19	171838	<5	<5	–	20	1.5	–	3	<0.008	–
20	171839	<5	<5	–	20	1.0	–	2	<0.008	–
21	171840	5	<5	–	15	1.0	–	3	<0.008	–
22	171901	35	55	–	20	1.5	–	150	0.030	–
23	171902	690	540	–	600	<0.5	–	1000	0.090	–
24	171903	375	30	–	20	<0.5	–	63	<0.008	–
25	171904	155	35	–	30	<0.5	–	15	0.110	–

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	5 OF 16

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171905	280	185	–	50	<0.5	–	24	<0.008	–
2	171906	155	145	–	55	<0.5	–	13	<0.008	–
3	171907	295	130	–	25	<0.5	–	120	<0.008	–
4	171908	245	100	–	20	<0.5	–	59	0.030	–
5	171871	5	<5	–	<5	<0.5	–	1	<0.008	–
6	171872	10	5	–	5	<0.5	–	<1	<0.008	–
7	171873	5	<5	–	<5	<0.5	–	3	<0.008	–
8	171874	5	<5	–	5	<0.5	–	5	0.010	–
9	171875	10	<5	–	5	<0.5	–	3	<0.008	–
10	171876	10	<5	–	5	<0.5	–	4	<0.008	–
11	171877	<5	<5	–	<5	<0.5	–	2	<0.008	–
12	171878	<5	<5	–	5	<0.5	–	3	<0.008	–
13	171879	<5	<5	–	<5	<0.5	–	3	<0.008	–
14	171880	10	5	–	30	<0.5	–	5	<0.008	–
15	171881	15	10	–	30	<0.5	–	31	<0.008	–
	171882	<5	<5	–	<5	<0.5	–	4	<0.008	–
17	171883	<5	<5	–	<5	<0.5	–	2	<0.008	–
18	171884	<5	10	–	5	<0.5	–	3	<0.008	–
19	171885	40	35	–	70	<0.5	–	130	<0.008	–
20	171886	35	15	–	40	<0.5	–	6	<0.008	–
21	171887	20	15	–	60	<0.5	–	4	<0.008	–
22	171888	30	5	–	40	<0.5	–	6	<0.008	–
23	171889	25	30	–	30	<0.5	–	26	<0.008	–
24	171890	40	5	–	100	<0.5	–	3	<0.008	–
25	171891	5	15	–	55	<0.5	–	3	<0.008	–

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	6 OF 16

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171892	5	5	-	80	<0.5	-	2	<0.008	-
2	171893	<5	<5	-	70	<0.5	-	3	<0.008	-
3	171894	10	10	-	60	<0.5	-	3	<0.008	-
4	171895	20	15	-	75	<0.5	-	3	<0.008	-
5	171896	10	15	-	25	<0.5	-	4	<0.008	-
6	171897	5	<5	-	115	<0.5	-	5	<0.008	-
7	171898	55	5	-	105	<0.5	-	6	<0.008	-
8	171899	45	10	-	70	<0.5	-	9	<0.008	-
9	171900	15	15	-	275	0.5	-	8	<0.008	-
10	171422	115	110	-	235	<0.5	-	10	<0.008	-
11	171423	10	5	-	35	0.5	-	1	<0.008	-
12	171424	20	<5	-	55	<0.5	-	12	<0.008	-
13	171425	<5	25	-	<5	1.0	-	3	<0.008	-
14	171426	25	30	-	60	1.5	-	4	<0.008	-
15	171427	25	20	-	60	1.0	-	2	<0.008	-
	171428	40	20	-	55	1.0	-	2	<0.008	-
17	171429	35	20	-	55	1.5	-	3	<0.008	-
18	171477	<5	20	-	25	0.5	-	3	0.570	-
19	171478	5	<5	-	25	1.0	-	8	<0.008	-
20	171479	10	<5	-	35	1.0	-	5	<0.008	-
21	[redacted]									-
22	[redacted]									-
23	171482	<5	5	-	25	0.5	-	5	0.600	-
24	171483	<5	25	-	25	1.0	-	2	<0.008	-
25	171484	5	<5	-	10	0.5	-	3	<0.008	-

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	7 OF 16

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171485	25	<5	–	15	<0.5	–	3	0.030	–
2	171293	<5	<5	–	10	0.5	–	2	0.010	–
3	171294	5	<5	–	10	<0.5	–	1	0.010	–
4	171295	<5	<5	–	25	0.5	–	2	0.040	–
5	171296	<5	<5	–	40	1.0	–	2	<0.008	–
6	171297	<5	<5	–	15	<0.5	–	1	<0.008	–
7	171298	<5	<5	–	10	0.5	–	1	<0.008	–
8	171299	<5	<5	–	10	1.0	–	6	0.010	–
9	171300	<5	<5	–	10	0.5	–	2	<0.008	–
10	171999	<5	<5	–	5	0.5	–	2	<0.008	–
11	172000	<5	<5	–	30	<0.5	–	2	0.150	–
12	171951	<5	<5	–	15	1.0	–	1	0.010	–
13	171952	<5	<5	–	15	0.5	–	<1	0.420	–
14	171953	<5	<5	–	20	0.5	–	1	<0.008	–
15	171954	<5	<5	–	35	1.0	–	<1	0.010	–
	171955	<5	<5	–	25	1.0	–	<1	<0.008	–
17	171956	<5	<5	–	15	<0.5	–	<1	<0.008	–
18	171957	<5	<5	–	20	0.5	–	<1	0.010	–
19	171958	<5	<5	–	15	1.0	–	<1	<0.008	–
20	171959	<5	<5	–	40	0.5	–	<1	<0.008	–
21	171960	<5	<5	–	20	0.5	–	<1	<0.008	–
22	171466	25	<5	–	20	0.5	–	1	<0.008	–
23	171467	15	5	–	45	0.5	–	4	<0.008	–
24	171468	<5	10	–	40	1.0	–	5	<0.008	–
25	171469	<5	<5	–	20	0.5	–	7	<0.008	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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892313

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	8 OF 16

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	[redacted]									–
2	[redacted]									–
3	171472	35	20	–	65	1.0	–	4	<0.008	–
4	171473	10	5	–	45	1.0	–	9	<0.008	–
5	171474	<5	10	–	20	<0.5	–	1	<0.008	–
6	171292	45	30	–	25	1.0	–	5	–	<0.005
7										
8										
9										
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	25	5	0.5	2	1	0.008	0.005
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	104	101	101	104	114	309	313

Results in ppm unless otherwise specified
T = element present: but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	9 OF 16

TUBE No.	SAMPLE No.	AuRpt									
1	171282	–									
2	171283	–		Rock Chip							
3	171284	–									
4	171285	–		Western Coastline							
5	171286	–									
6	171287	–									
7	171288	–									
8	171289	–									
9	171290	–									
10	171291	–									
11	[redacted]										
12	171430	–									
13	171431	–		Rock Chip	Line 5	Wanderer South.					
14	171432	–									
15	171434	–									
	171435	–		Rock Chip	Voyager 28.						
17	171436	–									
18	171762	–									
19	171763	–									
20	171764	–		Soil	Samples						
21	171765	–									
22	171766	–		Voyager 12.							
23	171767	–									
24	171768	–									
25	171769	–									

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	10 OF 16

TUBE No.	SAMPLE No.	AuRpt								
1	171770	-								
2	171771	<0.008								
3	171772	-				↑				
4	171773	-		Soil		Samples				
5	171774	-								
6	171775	-								
7	171776	-		Voyager			12			
8	171777	-								
9	171778	-								
10	171779	-				↓				
11	171780	-								
12	171781	-								
13	171782	-								
14	171783	-								
15	171784	-								
	171785	-								
17	171786	-								
18	171787	-								
19	171788	-								
20	171789	-								
21	171790	-								
22	171791	-								
23	171792	-								
24	171793	-								
25	171794	<0.008								

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	11 OF 16

TUBE No.	SAMPLE No.	AuRpt								
1	171795	–								
2	171796	–								
3	171797	–								
4	171798	–								
5	171799	–								
6	171800	–								
7	171801	–								
8	171802	–								
9	171803	–								
10	171804	<0.008								
11	171805	–								
12	171806	–								
13	171807	–								
14	171808	–								
15	171809	–								
	171810	<0.008								
17	171811	–								
18	171812	–								
19	171813	–								
20	171814	<0.008								
21	171815	–								
22	171816	–								
23	171817	–								
24	171818	–								
25	171819	–								

Soil Samples Voyager 12. ↓.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	12 OF 16

TUBE No.	SAMPLE No.	AuRpt
1	171820	–
2	171821	–
3	171822	–
4	171823	–
5	171824	<0.008
6	171825	–
7	171826	–
8	171827	–
9	171828	–
10	171829	–
11	171830	–
12	171831	–
13	171832	–
14	171833	–
15	171834	<0.008
	171835	–
17	171836	–
18	171837	–
19	171838	–
20	171839	–
21	171840	–
22	171901	–
23	171902	–
24	171903	–
25	171904	–

Soil Samples Voyager 12.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	14 OF 16

TUBE No.	SAMPLE No.	AuRpt									
1	171892	-									
2	171893	-									
3	171894	-									
4	171895	-			Soil	Samples					
5	171896	<0.008									
6	171897	-									
7	171898	-			Line 5						
8	171899	-									
9	171900	-			Wanderer	South.					
10	171422	-									
11	171423	-									
12	171424	-									
13	171425	-									
14	171426	-									
15	171427	<0.008									
	171428	-									
17	171429	-									
18	171477	-	Panned		Concentrate		Voyager 28				
19	171478	-	Panned		Concentrate		Wanderer South.				
20	171479	-									
21	[redacted]										
22	[redacted]										
23	171482	-	Panned		Concentrate		Wanderer South.				
24	171483	-									
25	171484	-									

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
__ = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	13 OF 16

TUBE No.	SAMPLE No.	AuRpt
1	171905	<0.008
2	171906	–
3	171907	–
4	171908	–
5	171871	–
6	171872	–
7	171873	–
8	171874	–
9	171875	–
10	171876	<0.008
11	171877	–
12	171878	–
13	171879	–
14	171880	–
15	171881	–
	171882	–
17	171883	–
18	171884	–
19	171885	–
20	171886	–
21	171887	–
22	171888	–
23	171889	–
24	171890	–
25	171891	–

Soil Samples
Voyager 12.

Soil Samples
Line 5

Wanderer South.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	15 OF 16

TUBE No.	SAMPLE No.	AuRpt	
1	171485	-	Panned Concentrate Line 5 Wanderer South.
2	171293	<0.008	
3	171294	-	
4	171295	-	Panned Concentrate,
5	171296	-	
6	171297	-	Voyager 6
7	171298	-	
8	171299	-	
9	171300	-	
10	171999	0.030	
11	172000	-	
12	171951	-	
13	171952	-	
14	171953	-	-80# Stream Sediment
15	171954	-	Samples
	171955	-	
17	171956	-	Voyager 6
18	171957	-	
19	171958	-	
20	171959	<0.008	
21	171960	-	
22	171466	-	-80# Stream Sediment Samples
23	171467	-	Line 5
24	171468	-	Wanderer South.
25	171469	-	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04189	05/03/87	E 00252	16 OF 16

TUBE No.	SAMPLE No.	AuRpt.								
1	[redacted]								✓	
2	[redacted]								✓	
3	171472	–	– 80# Stream Sediment Samples							
4	171473	–	Wanderer South.							
5	171474	<0.008								
6	171292	–	Rock Chip South Penders.							
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.008								
24	UNITS	PPM								
25	METHOD	309								

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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892322

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560
TLXC AA 89774

ANALYTICAL REPORT No. 7.5.08.04053

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
E 19310	DN 3451

DATE RECEIVED	RESULTS REQUIRED
08/12/86	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
6	17/12/86	1	132

STATE OF SAMPLES	PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	171151/275	SO	Prep: 006,016						Cu,Pb,Zn,Ag/101,As/114		
	171151/275	SO							Au/329,AuChk/309		
	180537/43	RO	Prep: 006,009,016,013,018						Cu,Pb,Zn,Ag/101,As/114		
	180537/43	RO							Au/313		

RESULTS TO

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO

C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

892323

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04053	17/12/86	E 19310	1 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au		
1	171151	5	15	15	<0.5	2	-	<0.01		
2	171152	<5	<5	5	0.5	1	-	<0.01		
3	171153	<5	5	5	<0.5	1	-	<0.01		
4	171154	<5	25	60	<0.5	7	-	0.02		
5	171155	5	60	70	0.5	11	-	<0.01		
6	171156	<5	5	15	<0.5	2	-	<0.01		
7	171157	5	10	15	<0.5	1	-	<0.01		
8	171158	5	35	10	1.0	1	-	<0.01		
9	171159	15	130	100	0.5	4	-	0.01		
10	171160	10	90	190	<0.5	6	-	<0.01		
11	171161	10	65	1150	<0.5	71	-	0.01		
12	171162	5	130	1350	<0.5	77	-	<0.01		
13	171163	5	35	1450	<0.5	71	-	<0.01		
14	171164	<5	15	25	<0.5	11	-	<0.01		
15	171165	<5	<5	10	<0.5	9	-	<0.01		
16	171166	5	110	575	1.0	61	-	<0.01		
17	171167	5	75	70	0.5	27	-	<0.01		
18	171168	<5	5	10	0.5	1	-	<0.01		
19	171169	5	30	50	<0.5	5	-	<0.01		
20	171170	5	30	855	<0.5	13	-	<0.01		
21	171171	25	45	265	<0.5	8	-	<0.01		
22	171172	25	460	8700	4.5	94	-	<0.01		
23	171173	5	125	1050	0.5	66	-	<0.01		
24	171174	5	5	175	0.5	16	-	0.01		
25	171175	5	45	110	<0.5	7	-	<0.01		

Soil Samples. 19 Voyager

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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892324

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04053	17/12/86	E 19310	2 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au		
1	171176	5	<5	10	<0.5	<1	-	0.01		
2	171177	5	40	910	0.5	66	-	<0.01		
3	171178	5	35	40	0.5	26	-	0.01		
4	171179	<5	110	90	<0.5	3	-	0.01		
5	171180	10	45	440	0.5	17	-	0.01		
6	171181	10	1150	1500	0.5	270	-	0.01		
7	171182	10	490	2650	<0.5	18	-	<0.01		
8	171183	5	70	4150	0.5	6	-	0.01		
9	171184	5	25	390	<0.5	2	-	<0.01		
10	171185	5	20	10	0.5	1	-	<0.01		
11	171186	5	45	300	<0.5	11	-	0.01		
12	171187	10	140	15	<0.5	3	-	<0.01		
13	171188	<5	25	75	1.0	12	-	0.02		
14	171189	<5	35	255	<0.5	<1	-	<0.01		
15	171190	5	90	60	<0.5	1	-	<0.01		
16	171191	65	245	20	1.5	5	-	0.01		
17	171192	10	200	50	1.0	7	-	<0.01		
18	171193	5	35	70	1.0	1	-	<0.01		
19	171194	10	5	5	0.5	1	-	<0.01		
20	171195	15	60	1000	0.5	10	-	<0.01		
21	171196	<5	<5	5	0.5	1	-	0.01		
22	171197	10	-	5	0.5	1	-	-		
23	171198	20	<5	5	1.0	5	-	<0.01		
24	171199	10	10	5	<0.5	2	-	0.01		
25	171200	90	20	5	0.5	52	-	<0.01		

Soil Samples. Voyager 19

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04053	17/12/86	E 19310	3 OF 9

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au		
1	171201	10	10	210	1.0	2		<0.01		
2	171202	5	15	255	1.0	1	-	<0.01		
3	171203	10	40	80	0.5	1	-	<0.01		
4	171204	5	30	25	1.0	1	-	<0.01		
5	171205	65	360	730	3.0	25	-	<0.01		
6	171206	5	90	280	1.0	8	-	<0.01		
7	171207	10	130	1050	1.0	5	-	<0.01	19	
8	171208	10	5400	9700	5.0	76		<0.01		
9	171209	5	25	20	1.0	3		<0.01		
10	171210	210	1700	3550	3.5	59		<0.01	Voyager	
11	171211	5	40	10	1.5	51		<0.01		
12	171212	5	45	10	0.5	2	-	<0.01		
13	171213	5	25	95	0.5	4	-	<0.01		
14	171214	15	60	10	0.5	1	-	<0.01		
15	171215	10	20	10	1.0	2		<0.01	Soil Samples	
16	171216	<5	5	5	0.5	1	-	<0.01		
17	171217	20	<5	5	1.0	1	-	<0.01		
18	171218	<5	10	5	1.0	1	-	<0.01		
19	171219	5	5	5	1.0	1	-	<0.01		
20	171220	20	10	5	1.0	3	-	<0.01		
21	171221	10	10	5	0.5	2	-	<0.01		
22	171222	5	<5	5	0.5	1	-	<0.01		
23	171223	<5	10	85	1.0	1	-	<0.01		
24	171224	5	5	95	1.0	1	-	<0.01		
25	171225	5	10	60	0.5	1	-	<0.01		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04053	17/12/86	E 19310	4 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au		
1	171226	5	15	20	0.5	2		<0.01		
2	171227	5	35	165	0.5	12	-	<0.01		
3	171228	5	45	30	1.0	2	-	0.02		
4	171229	20	35	10	0.5	3	-	<0.01		
5	171230	10	40	25	1.0	2	-	<0.01		
6	171231	35	400	80	1.0	10	-	<0.01		
7	171232	5	45	70	0.5	3	-	<0.01	Voyager 19	
8	171233	30	550	1950	2.5	19	-	<0.01		
9	171234	10	65	440	0.5	3	-	<0.01		
10	171235	10	45	60	0.5	2	-	0.01		
11	171236	5	90	60	<0.5	1	-	0.01		
12	171237	5	200	380	0.5	1	-	0.01		
13	171238	<5	15	10	0.5	3	-	<0.01		
14	171239	5	15	5	<0.5	<1	-	0.01		
15	171240	5	100	15	<0.5	1	-	0.01	Soil Samples	
16	171241	<5	15	30	<0.5	1	-	0.01		
17	171242	<5	10	10	1.0	<1	-	0.04		
18	171243	10	5	15	<0.5	<1	-	<0.01		
19	171244	5	15	15	0.5	1	-	<0.01		
20	171245	<5	15	15	0.5	1	-	0.01		
21	171246	15	400	1250	1.0	13	-	0.02		
22	171247	5	<5	10	<0.5	<1	-	<0.01		
23	171248	<5	<5	10	<0.5	<1	-	<0.01		
24	171249	5	50	60	0.5	1	-	<0.01		
25	171250	5	5	15	0.5	1	-	0.01		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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32[illegible]

892327

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04053	17/12/86	E 19310	5 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au		
1	171251	5	15	275	0.5	<1	-	0.01		
2	171252	5	10	55	<0.5	1	-	<0.01		
3	171253	70	640	100	3.0	14	-	<0.01		
4	171254	20	315	300	0.5	11	-	<0.01		
5	171255	25	685	480	1.0	17	-	<0.01		
6	171256	5	30	160	0.5	6	-	<0.01		
7	171257	5	55	60	0.5	1	-	0.01		
8	171258	75	1150	540	1.5	13	-	0.01		
9	171259	5	35	20	0.5	1	-	0.05		
10	171260	10	40	35	0.5	<1	-	0.01		
11	171261	5	30	10	0.5	1	-	<0.01		
12	171262	5	20	10	0.5	1	-	0.01		
13	171263	<5	<5	10	0.5	<1	-	<0.01		
14	171264	5	10	5	0.5	<1	-	<0.01		
15	171265	<5	<5	5	0.5	<1	-	0.01		
16	171266	5	35	20	0.5	<1	-	<0.01		
17	171267	5	40	40	<0.5	<1	-	<0.01		
18	171268	70	4750	8250	14.0	70	-	0.07		
19	171269	5	50	40	2.0	2	-	0.01		
20	171270	<5	25	20	1.0	1	-	0.01		
21	171271	5	50	55	17.5	1	-	0.32		
22	171272	<5	20	10	1.0	1		<0.01		
23	171273	<5	10	10	0.5	1	-	0.01		
24	171274	<5	10	20	0.5	2	-	0.01		
25	171275	<5	5	5	0.5	1	-	<0.01		

Voyager 19. Samples Soil

Results in ppm unless otherwise specified
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04053	17/12/86	L 1V310	6 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au	Au		
1	180537	90	25	90	<0.5	3	[illegible]	-		
2	180538	115	10	75	<0.5	8	<0.005	-	Rock Chip Voyager 9.	
3	180539	20	20	40	<0.5	3	<0.005	-		
4	180540	<5	<5	10	0.5	<1	<0.005	-		
5	180541	10	10	20	<0.5	3	<0.005	Rock Chip Voyager 19.		
6	180542	170	25	15	0.5	21	[illegible]	Rock Chip Voyager 9.		
7	180543	[illegible]	2200	435	17.0	[illegible]	[illegible]	Rock Chip Hudson R.		
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19		NOTE: All Checks for Au by method 313 are below Detection Limit.								
20										
21										
22										
23	DETECTION	5	5	5	0.5	1	0.005	0.01		
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM		
25	METHOD	101	101	101	101	114	313	329		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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A division of MacDonald Hamilton & Co. Pty. Ltd.
(09) 587 7999 52 Murray Road, Welshpool, W.A. 6106 Telex AA92560

ANALYTICAL REPORT No. 7.5.08.04204

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
E00253	

DATE RECEIVED	RESULTS REQUIRED
04/02/88	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
11	08/04/87	1	365

STATE OF SAMPLES (REFER BELOW)	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER (SEE REMARKS)	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	RO							Cu,Pb,Zn,Ag/101,As/114		
	Various	RO							Au,AuChk/309		
	Various	SS							Cu,Pb,Zn,Ag/101,As/114		
	Various	SS							Au,AuChk/309		
	Various	SS							Cu,Pb,Zn,Ag/101,As/114		

RESULTS TO

C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

RESULTS TO

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilisation	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	1 OF 11

TUBE No.	SAMPLE No.		Au	AuChk	
1	171437		<0.008	<0.008	Rock Chip Porphyry Contact
2	171438		<0.008	–	
3	171692		0.330	–	
4	171693		0.380	–	Rock Chip
5	171694		0.190	–	
6	171695		0.510	–	Voyager 12
7	171696		0.910	–	
8	171697		24.270	–	
9	171698		1.150	–	
10	171980		0.150	0.120	
11	171981		7.250	6.610	
12	171982		0.770	–	Rock Chip
13	171983		<0.008	–	
14	171984		0.010	–	Voyager 6
15	171985		<0.008	–	
16	171986		<0.008	–	
17	171987		<0.008	–	
18	180583		<0.008	–	Rock Chip Voyager 16
19	180584		<0.008	–	
20	171475	_80#+150#	<0.008	–	-80# Stream Sediment Voyager 12
21	171566	_80#+150#	<0.008	–	-80# Stream Sediment
22	171567	_80#+150#	<0.008	–	Voyager 16
23	171568	_80#+150#	<0.008	–	
24	171699	_80#+150#	<0.008	–	-80# Stream Sediment
25	171700	_80#+150#	<0.008	–	Porphyry Contact.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	2 OF 11

TUBE No.	SAMPLE No.	Au	AuChk						
1	171701 _80#+150#	<0.008	–						
2	171702 _80#+150#	<0.008	–						
3	171703 _80#+150#	<0.008	–						
4	171704 _80#+150#	<0.008	–						
5	171705 _80#+150#	<0.008	–						
6	171706 _80#+150#	<0.008	–						
7	171707 _80#+150#	<0.008	–	-80# Stream					
8	171708 _80#+150#	<0.008	–						
9	171709 _80#+150#	<0.008	–	Sediment					
10	171710 _80#+150#	<0.008	–						
11	171711 _80#+150#	<0.008	–	Porphyry Contact.					
12	171712 _80#+150#	<0.008	–						
13	171713 _80#+150#	0.020	–						
14	171714 _80#+150#	0.090	–						
15	171715 _80#+150#	<0.008	–						
16	171716 _80#+150#	<0.008	<0.008						
17	171717 _80#+150#	<0.008	–						
18	171718 _80#+150#	0.080	–						
19	171719 _80#+150#	<0.008	–						
20	171720 _80#+150#	<0.008	–						
21	171721 _80#+150#	<0.008	–						
22	171961 _80#+150#	<0.008	–	-80# Stream Sediment					
23	171962 _80#+150#	0.010	–						
24	171963 _80#+150#	0.930	–	Granite Contact.					
25	171964 _80#+150#	0.850	–						

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	3 OF 11

TUBE No.	SAMPLE No.	Au	AuChk	
1	171965 _80#+150#	<0.008	–	-80# Stream Sediment
2	202001 _80#+150#	<0.008	–	Granite Contact.
3	202002 _80#+150#	0.040	–	
4	202003 _80#+150#	<0.008	–	
5	202004 _80#+150#	<0.008	–	
6	202005 _80#+150#	<0.008	<0.008	
7	202006 _80#+150#	0.050	–	Stream Sediment
8	202007 _80#+150#	<0.008	–	
9	202008 _80#+150#	0.070	–	Porphyry Contact.
10	202009 _80#+150#	0.010	–	
11	202010 _80#+150#	<0.008	<0.008	
12	202011 _80#+150#	0.020	–	
13	171476	<0.008	–	Panned Concentrate Voyager 12.
14	171615	<0.008	–	
15	171616	<0.008	–	Panned Concentrates
16	171617	<0.008	–	Voyager 16
17	171618	<0.008	–	
18	171994	<0.008	<0.008	Panned Concentrates
19	171995	1.190	–	Granite Contact
20	171996	1.990	–	
21	171997	22.600	22.010	
22	171998	0.630	–	
23	202040	22.570	–	Panned Concentrates
24	202041	1.330	–	Porphyry Contact.
25	202042	35.470	45.090	

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	4 OF 11

TUBE No.	SAMPLE No.		Au	AuChk							
1	202043		6.080	–							
2	202044		1.110	1.030							
3	202045		59.170	80.020							
4	202046		53.000	48.570							
5	202047		1.160	–							
6	202048		5.310	–							
7	202049		14.130	–							
8	202050		11.730	–							
9	202101		<0.008	–							
10	202102		0.010	–							
11	202103		<0.008	–							
12	202104		<0.008	–							
13	202105		0.030	0.030							
14	202106		<0.008	–							
15	202107		0.010	–							
16	202108		<0.008	–							
17	202109		<0.008	–							
18	202110		0.010	–							
19	202111		0.030	–							
20	202112		<0.008	–							
21	202113		0.190	–							
22	202114		<0.008	–							
23	202115		<0.008	<0.008							
24	202116		<0.008	–							
25	202117		<0.008	–							

Panned Concentrates
Porphyry Contact.

Panned Concentrates
Porphyry Contact.

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	5 OF 11

TUBE No.	SAMPLE No.		Au	AuChk						
1	202118		<0.008	–						
2	202119		0.040	–						
3	202120		<0.008	–						
4	202121		<0.008	–						
5	202122		<0.008	–						
6	202123		<0.008	–						
7	171841		<0.008	–						
8	171842		<0.008	–						
9	171843		<0.008	–						
10	171844		0.010	<0.008						
11	171845		<0.008	–						
12	171846		0.010	–						
13	171847		<0.008	–						
14	171848		<0.008	–						
15	171849		0.010	–						
16	171850		0.070	–						
17	171909		<0.008	–						
18	171910		<0.008	–						
19	171911		<0.008	–						
20	171912		<0.008	–						
21	171913		<0.008	–						
22	171914		<0.008	–						
23	171915		<0.008	–						
24	171916		0.010	–						
25	171917		0.010	–						

Panned Concentrates

Porphyry Contact.

Soil Samples

Voyager 12

Soil Samples

Voyager 12

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	6 OF 11

TUBE No.	SAMPLE No.		Au	AuChk						
1	171918		<0.008	–						
2	171919		<0.008	–						
3	171920		<0.008	–						
4	171921		<0.008	–						
5	171922		<0.008	<0.008						
6	171923		<0.008	–						
7	171924		<0.008	–						
8	171925		0.030	–		Soil Samples				
9	171926		<0.008	–						
10	171927		0.010	–		Voyager 12.				
11	171928		<0.008	–						
12	171929		<0.008	–						
13	171930		<0.008	–						
14	171931		<0.008	–						
15	171932		<0.008	0.010						
16	171933		<0.008	–						
17	171934		<0.008	–						
18	171935		<0.008	–						
19	171936		<0.008	–						
20	171937		<0.008	–						
21	171938		<0.008	–						
22	171939		<0.008	–						
23	171940		<0.008	–						
24	171941		<0.008	–						
25	171942		<0.008	–						

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	7 OF 11

TUBE No.	SAMPLE No.		Au	AuChk						
1	171943		<0.008	–						
2	171944		<0.008	–						
3	171945		<0.008	–						
4	171946		<0.008	–						
5	171947		<0.008	–						
6	171948		<0.008	–						
7	171949		<0.008	–						
8	171950		<0.008	–						
9	202051		<0.008	–		Soil Samples.				
10	202052		0.030	0.030						
11	202053		<0.008	–		Voyager 12.				
12	202054		<0.008	–						
13	202055		<0.008	–						
14	202056		<0.008	–						
15	202057		<0.008	–						
16	202058		<0.008	–						
17	202059		<0.008	–						
18	202060		<0.008	–						
19	202061		<0.008	–						
20	202062		<0.008	–						
21	202063		<0.008	–						
22	202064		<0.008	–						
23	202065		<0.008	–						
24	202066		<0.008	–						
25	202067		0.050	–						

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	8 OF 11

TUBE No.	SAMPLE No.		Au	AuChk						
1	202068		0.130	–						
2	202069		<0.008	–						
3	202070		<0.008	–						
4	202071		<0.008	–						
5	202072		<0.008	<0.008						
6	202073		<0.008	–						
7	202074		0.010	–						
8	202075		0.020	–		Soil Samples				
9	202076		<0.008	–						
10	202077		<0.008	–		Voyager 12.				
11	202078		<0.008	–						
12	202079		<0.008	–						
13	202080		<0.008	–						
14	202081		<0.008	–						
15	202082		<0.008	–						
16	202083		<0.008	–						
17	202084		<0.008	–						
18	202085		<0.008	–						
19	202086		<0.008	–						
20	202087		<0.008	–						
21	202088		<0.008	–						
22	202089		<0.008	–						
23	202090		<0.008	–						
24	202091		<0.008	–						
25	202092		<0.008	–						

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	9 OF 11

TUBE No.	SAMPLE No.		Au	AuChk						
1	202093		<0.008	–						
2	202094		<0.008	–						
3	202095		<0.008	–						
4	202096		<0.008	–						
5	202097		<0.008	–						
6	202098		<0.008	–						
7	202099		<0.008	–						
8	202100		<0.008	–		Soil Samples				
9	202151		<0.008	–						
10	202152		<0.008	–		Voyager 12.				
11	202153		<0.008	–						
12	202154		<0.008	–						
13	202155		<0.008	–						
14	202156		<0.008	–						
15	202157		<0.008	–						
16	202158		<0.008	–						
17	202159		<0.008	–						
18	202160		<0.008	–						
19	202161		<0.008	–						
20	202162		<0.008	–						
21	202163		<0.008	–						
22	202201		<0.008	–						
23	202202		<0.008	–						
24	202203		<0.008	–						
25	202204		0.030	–						

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	10 OF 11

TUBE No.	SAMPLE No.		Au	AuChk						
1	202205		0.020	–						
2	202206		0.010	–						
3	202207		<0.008	–						
4	202208		0.010	–						
5	202209		0.040	–						
6	202210		0.060	–						
7	202211		0.020	–						
8	202212		<0.008	<0.008						
9	202213		<0.008	–		Soil Samples				
10	202214		<0.008	–						
11	202215		<0.008	–		Voyager 12.				
12	202216		<0.008	–						
13	202217		<0.008	–						
14	202218		0.020	–						
15	202219		0.010	–						
16	202220		<0.008	–						
17	202221		<0.008	–						
18	202222		0.020	0.010						
19	202223		<0.008	–						
20	202224		<0.008	–						
21	202225		0.110	–						
22	202226		<0.008	–						
23	202227		<0.008	–						
24	202228		<0.008	–						
25	202229		<0.008	–						

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	11 OF 11

TUBE No.	SAMPLE No.		Au	AuChk						
1	202230		<0.008	–						
2	202231		<0.008	–						
3	202232		0.010	0.010						
4	202233		<0.008	–						
5	202234		<0.008	–						
6	202235		<0.008	–						
7	202236		<0.008	–						
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		0.008	0.008						
24	UNITS		PPM	PPM						
25	METHOD		309	309						

Soil Samples
Voyager 12.

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	1 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	171437		10	40	-	50	0.5	-	5	
2	171438		50	5	-	10	<0.5	-	3	
3	171692		7800	-	2475	205	-	93	3700	
4	171693		2000	-	4175	300	-	13	4100	
5	171694		28500	-	3000	335	-	34	4900	
6	171695		1900	-	2750	1800	-	20	6500	
7	171696		535	-	2125	560	-	16	4700	
8	171697		46500	-	8800	1900	-	161	24000	
9	171698		3600	-	1950	595	<0.5	-	10500	
10	171980		90	505	-	610	<0.5	-	37	
11	171981		910	675	-	60	-	21	25	
12	171982		1150	395	-	30	-	14	21	
13	171983		30	5	-	15	<0.5	-	8	
14	171984		20	15	-	60	<0.5	-	7	
15	171985		20	5	-	130	<0.5	-	6	
16	171986		45	50	-	85	<0.5	-	4	
17	171987		15	95	-	160	<0.5	-	3	
18	180583		10	10	-	100	<0.5	-	4	
19	180584		50	30	-	120	0.5	-	7	
20	171475	_80#+150#	40	30	-	25	<0.5	-	18	
21	171566	_80#+150#	<5	15	-	20	<0.5	-	4	
22	171567	_80#+150#	<5	5	-	30	<0.5	-	5	
23	171568	_80#+150#	<5	10	-	15	<0.5	-	4	
24	171699	_80#+150#	<5	<5	-	10	<0.5	-	3	
25	171700	_80#+150#	<5	<5	-	10	<0.5	-	4	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	2 OF 11

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	
1	171701 _80#+150#	<5	<5	–	5	<0.5	–	2	
2	171702 _80#+150#	<5	<5	–	5	0.5	–	3	
3	171703 _80#+150#	<5	<5	–	5	<0.5	–	4	
4	171704 _80#+150#	<5	<5	–	5	<0.5	–	3	
5	171705 _80#+150#	<5	<5	–	5	<0.5	–	3	
6	171706 _80#+150#	<5	<5	–	10	<0.5	–	4	
7	171707 _80#+150#	<5	<5	–	10	0.5	–	4	
8	171708 _80#+150#	<5	<5	–	10	<0.5	–	7	
9	171709 _80#+150#	<5	<5	–	20	0.5	–	5	
10	171710 _80#+150#	<5	<5	–	20	<0.5	–	4	
11	171711 _80#+150#	<5	<5	–	10	<0.5	–	4	
12	171712 _80#+150#	<5	<5	–	10	<0.5	–	3	
13	171713 _80#+150#	<5	<5	–	20	<0.5	–	3	
14	171714 _80#+150#	<5	<5	–	15	<0.5	–	4	
15	171715 _80#+150#	<5	<5	–	10	<0.5	–	3	
16	171716 _80#+150#	<5	<5	–	25	0.5	–	5	
17	171717 _80#+150#	<5	<5	–	10	0.5	–	3	
18	171718 _80#+150#	<5	5	–	5	<0.5	–	3	
19	171719 _80#+150#	<5	<5	–	10	<0.5	–	3	
20	171720 _80#+150#	<5	<5	–	5	0.5	–	4	
21	171721 _80#+150#	<5	<5	–	5	0.5	–	4	
22	171961 _80#+150#	<5	<5	–	10	<0.5	–	4	
23	171962 _80#+150#	5	<5	–	15	0.5	–	3	
24	171963 _80#+150#	5	<5	–	10	0.5	–	4	
25	171964 _80#+150#	5	<5	–	25	<0.5	–	4	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	3 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	171965 _80	#+150#	<5	<5	-	50	0.5	-	4	
2	202001 _80	#+150#	10	15	-	25	0.5	-	6	
3	202002 _80	#+150#	5	<5	-	15	<0.5	-	5	
4	202003 _80	#+150#	5	5	-	15	<0.5	-	4	
5	202004 _80	#+150#	<5	5	-	10	<0.5	-	3	
6	202005 _80	#+150#	5	10	-	15	0.5	-	7	
7	202006 _80	#+150#	<5	<5	-	10	<0.5	-	5	
8	202007 _80	#+150#	5	10	-	20	<0.5	-	5	
9	202008 _80	#+150#	5	<5	-	10	0.5	-	4	
10	202009 _80	#+150#	<5	<5	-	15	<0.5	-	4	
11	202010 _80	#+150#	<5	<5	-	10	<0.5	-	7	
12	202011 _80	#+150#	<5	<5	-	5	<0.5	-	4	
13	171476		95	15	-	25	<0.5	-	10	
14	171615		<5	<5	-	15	<0.5	-	2	
15	171616		<5	5	-	25	<0.5	-	<1	
16	171617		<5	<5	-	10	<0.5	-	<1	
17	171618		<5	<5	-	10	<0.5	-	<1	
18	171994		5	5	-	170	<0.5	-	4	
19	171995		<5	5	-	165	<0.5	-	4	
20	171996		5	10	-	330	<0.5	-	4	
21	171997		30	<5	-	75	<0.5	-	3	
22	171998		<5	5	-	15	<0.5	-	2	
23	202040		<5	<5	-	25	<0.5	-	<1	
24	202041		<5	<5	-	15	<0.5	-	<1	
25	202042		<5	5	-	20	1.5	-	<1	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	4 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	202043		<5	<5	–	15	<0.5	–	<1	
2	202044		<5	10	–	15	<0.5	–	<1	
3	202045		<5	5	–	10	<0.5	–	<1	
4	202046		<5	5	–	20	<0.5	–	<1	
5	202047		<5	5	–	15	<0.5	–	<1	
6	202048		5	<5	–	40	<0.5	–	<1	
7	202049		10	30	–	35	0.5	–	<1	
8	202050		10	5	–	30	<0.5	–	2	
9	202101		<5	<5	–	5	<0.5	–	2	
10	202102		<5	<5	–	10	<0.5	–	<1	
11	202103		<5	<5	–	10	0.5	–	<1	
12	202104		<5	<5	–	5	<0.5	–	<1	
13	202105		<5	<5	–	10	<0.5	–	<1	
14	202106		<5	<5	–	5	<0.5	–	<1	
15	202107		5	<5	–	10	<0.5	–	<1	
16	202108		<5	<5	–	10	<0.5	–	<1	
17	202109		<5	<5	–	10	<0.5	–	2	
18	202110		<5	<5	–	10	<0.5	–	<1	
19	202111		<5	<5	–	5	<0.5	–	<1	
20	202112		<5	<5	–	5	<0.5	–	<1	
21	202113		<5	<5	–	10	<0.5	–	<1	
22	202114		<5	<5	–	5	<0.5	–	2	
23	202115		5	<5	–	10	<0.5	–	<1	
24	202116		5	<5	–	25	<0.5	–	2	
25	202117		<5	<5	–	10	<0.5	–	<1	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	5 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	202118		<5	<5	–	15	<0.5	–	2	
2	202119		5	<5	–	25	<0.5	–	2	
3	202120		5	10	–	5	<0.5	–	<1	
4	202121		5	10	–	5	<0.5	–	<1	
5	202122		5	5	–	5	<0.5	–	<1	
6	202123		5	5	–	5	<0.5	–	<1	
7	171841		15	50	–	15	5.0	–	1	
8	171842		<5	<5	–	10	3.5	–	<1	
9	171843		<5	<5	–	10	<0.5	–	<1	
10	171844		<5	10	–	15	0.5	–	29	
11	171845		<5	<5	–	10	1.0	–	3	
12	171846		5	<5	–	300	1.5	–	1	
13	171847		5	<5	–	20	1.0	–	1	
14	171848		<5	<5	–	10	0.5	–	18	
15	171849		40	10	–	15	<0.5	–	230	
16	171850		605	110	–	15	<0.5	–	3110	
17	171909		15	60	–	600	<0.5	–	11	
18	171910		5	75	–	85	<0.5	–	22	
19	171911		<5	<5	–	10	0.5	–	1	
20	171912		5	<5	–	10	<0.5	–	<1	
21	171913		10	<5	–	15	<0.5	–	6	
22	171914		15	20	–	70	0.5	–	120	
23	171915		5	15	–	25	<0.5	–	41	
24	171916		<5	10	–	10	<0.5	–	23	
25	171917		30	30	–	25	<0.5	–	69	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	6 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	171918		25	25	-	20	<0.5	-	130	
2	171919		10	15	-	15	0.5	-	4	
3	171920		5	<5	-	20	<0.5	-	1	
4	171921		5	5	-	20	<0.5	-	<1	
5	171922		5	5	-	15	<0.5	-	<1	
6	171923		<5	10	-	20	<0.5	-	1	
7	171924		25	25	-	35	0.5	-	6	
8	171925		25	250	-	70	-	10	170	
9	171926		65	290	-	170	9.0	-	290	
10	171927		70	30	-	35	1.5	-	130	
11	171928		20	20	-	85	<0.5	-	44	
12	171929		50	20	-	25	<0.5	-	170	
13	171930		75	45	-	35	<0.5	-	31	
14	171931		100	75	-	25	2.0	-	200	
15	171932		25	40	-	15	1.0	-	7	
16	171933		5	<5	-	20	1.5	-	2	
17	171934		5	15	-	20	2.5	-	1	
18	171935		205	200	-	150	1.0	-	8	
19	171936		10	20	-	20	<0.5	-	2	
20	171937		10	25	-	30	<0.5	-	6	
21	171938		15	35	-	40	<0.5	-	11	
22	171939		5	10	-	10	0.5	-	3	
23	171940		<5	5	-	10	0.5	-	6	
24	171941		<5	5	-	10	<0.5	-	7	
25	171942		10	30	-	10	4.5	-	4	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	7 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	171943		470	–	1700	185	–	12	11	
2	171944		10	5	–	10	<0.5	–	3	
3	171945		<5	5	–	10	<0.5	–	2	
4	171946		<5	<5	–	10	<0.5	–	7	
5	171947		5	<5	–	15	<0.5	–	5	
6	171948		115	180	–	25	<0.5	–	290	
7	171949		340	–	1375	35	0.5	–	520	
8	171950		80	295	–	10	<0.5	–	51	
9	202051		15	<5	–	10	<0.5	–	10	
10	202052		920	–	1650	25	<0.5	–	2200	
11	202053		55	120	–	10	<0.5	–	44	
12	202054		5	<5	–	10	<0.5	–	14	
13	202055		5	15	–	10	<0.5	–	10	
14	202056		10	<5	–	20	<0.5	–	11	
15	202057		10	<5	–	15	<0.5	–	13	
16	202058		125	35	–	165	<0.5	–	6	
17	202059		10	10	–	50	<0.5	–	6	
18	202060		5	<5	–	10	0.5	–	6	
19	202061		<5	<5	–	15	<0.5	–	4	
20	202062		10	5	–	10	<0.5	–	7	
21	202063		335	255	–	40	<0.5	–	120	
22	202064		50	135	–	25	0.5	–	200	
23	202065		10	15	–	15	<0.5	–	17	
24	202066		135	40	–	25	<0.5	–	1200	
25	202067		40	25	–	20	<0.5	–	200	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	8 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	202068		235	115	–	25	0.5	–	1500	
2	202069		15	<5	–	20	<0.5	–	32	
3	202070		5	<5	–	15	<0.5	–	6	
4	202071		5	<5	–	15	0.5	–	6	
5	202072		5	<5	–	15	0.5	–	4	
6	202073		5	<5	–	20	<0.5	–	5	
7	202074		10	<5	–	20	<0.5	–	4	
8	202075		5	<5	–	15	1.0	–	78	
9	202076		<5	30	–	15	0.5	–	13	
10	202077		5	40	–	15	0.5	–	12	
11	202078		<5	<5	–	15	<0.5	–	3	
12	202079		5	<5	–	15	<0.5	–	3	
13	202080		5	<5	–	20	<0.5	–	3	
14	202081		5	<5	–	20	<0.5	–	3	
15	202082		25	10	–	20	<0.5	–	78	
16	202083		45	15	–	25	<0.5	–	37	
17	202084		10	<5	–	20	<0.5	–	13	
18	202085		5	<5	–	15	<0.5	–	9	
19	202086		5	<5	–	10	<0.5	–	6	
20	202087		10	75	–	20	0.5	–	660	
21	202088		10	10	–	15	<0.5	–	13	
22	202089		95	30	–	25	<0.5	–	56	
23	202090		5	<5	–	15	<0.5	–	3	
24	202091		10	115	–	50	0.5	–	12	
25	202092		10	10	–	30	<0.5	–	5	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	9 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	202093		5	95	–	25	<0.5	–	4	
2	202094		5	<5	–	15	<0.5	–	3	
3	202095		<5	<5	–	20	<0.5	–	2	
4	202096		<5	<5	–	15	<0.5	–	3	
5	202097		5	<5	–	15	<0.5	–	3	
6	202098		5	5	–	10	<0.5	–	<1	
7	202099		5	15	–	15	<0.5	–	12	
8	202100		5	10	–	10	<0.5	–	4	
9	202151		5	15	–	20	<0.5	–	4	
10	202152		<5	15	–	15	<0.5	–	<1	
11	202153		5	150	–	20	<0.5	–	2	
12	202154		<5	10	–	15	<0.5	–	<1	
13	202155		<5	5	–	10	<0.5	–	<1	
14	202156		5	10	–	10	<0.5	–	2	
15	202157		<5	10	–	10	<0.5	–	2	
16	202158		5	15	–	20	<0.5	–	3	
17	202159		5	10	–	20	<0.5	–	2	
18	202160		<5	10	–	30	<0.5	–	2	
19	202161		5	<5	–	20	<0.5	–	3	
20	202162		5	<5	–	10	<0.5	–	4	
21	202163		5	<5	–	5	<0.5	–	4	
22	202201		75	90	–	25	<0.5	–	200	
23	202202		30	75	–	30	<0.5	–	12	
24	202203		<5	10	–	5	<0.5	–	3	
25	202204		<5	5	–	10	<0.5	–	5	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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892350

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	10 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	202205		5	<5	–	10	<0.5	–	3	
2	202206		70	5	–	15	<0.5	–	27	
3	202207		20	15	–	15	<0.5	–	12	
4	202208		<5	15	–	10	<0.5	–	3	
5	202209		110	85	–	30	3.5	–	130	
6	202210		600	545	–	35	–	12	1100	
7	202211		15	<5	–	20	<0.5	–	120	
8	202212		20	<5	–	30	<0.5	–	29	
9	202213		10	<5	–	15	0.5	–	8	
10	202214		5	<5	–	15	<0.5	–	4	
11	202215		205	180	–	50	<0.5	–	51	
12	202216		205	20	–	40	<0.5	–	14	
13	202217		190	35	–	35	<0.5	–	16	
14	202218		100	80	–	20	<0.5	–	65	
15	202219		100	495	–	15	0.5	–	380	
16	202220		545	300	–	120	<0.5	–	180	
17	202221		1400	415	–	440	<0.5	–	2000	
18	202222		470	–	1200	40	<0.5	–	210	
19	202223		5	<5	–	15	<0.5	–	6	
20	202224		5	<5	–	20	<0.5	–	10	
21	202225		40	35	–	15	0.5	–	110	
22	202226		10	<5	–	10	<0.5	–	46	
23	202227		5	<5	–	10	<0.5	–	4	
24	202228		<5	<5	–	10	<0.5	–	3	
25	202229		10	<5	–	15	<0.5	–	4	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04204	08/04/87	E00253	11 OF 11

TUBE No.	SAMPLE No.		Cu	Pb	Pb	Zn	Ag	Ag	As	
1	202230		5	<5	–	10	<0.5	–	4	
2	202231		25	<5	–	15	<0.5	–	5	
3	202232		5	<5	–	10	<0.5	–	5	
4	202233		<5	<5	–	10	<0.5	–	3	
5	202234		5	<5	–	60	<0.5	–	6	
6	202235		10	<5	–	100	<0.5	–	5	
7	202236		<5	<5	–	15	2.5	–	3	
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		5	5	25	5	0.5	2	1	
24	UNITS		PPM	PPM	PPM	PPM	PPM	PPM	PPM	
25	METHOD		101	101	104	101	101	104	114	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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Phone (09) 458 7999 52 Murray Road, Welshpool, W.A. 6106 Telex AA92560
TELEX AA 89221

ANALYTICAL REPORT No. 7.5.08.04222

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
4827/31	

DATE RECEIVED	RESULTS REQUIRED
11/02/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	10/03/87	1	356

STATE OF SAMPLES	PRE-TREATMENT								ANALYSIS			
NUMBER OF SAMPLES	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	SO	Prep: 006,009,016						Cu,Pb,Zn,Ag/101,As/114,Au/329		
	Various	PU							Au,AuChk/309		
	Various	SS	Prep: 006,007,016						Cu,Pb,Zn,Ag/101,As/114		
	Various	PU							Au,AuChk/309		
	Various	PC	Prep: 002,004,299,016						Cu,Pb,Zn,Ag/101,As/114		

RESULTS TO

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorption	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	X-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	1 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202237	<5	335	240	<0.5	-	1	0.160	-	-
2	202238	<5	<5	35	<0.5	-	1	0.050	-	-
3	202239	<5	10	20	<0.5	-	1	0.030	-	-
4	202240	<5	<5	10	<0.5	-	1	0.010	-	-
5	202241	<5	10	15	<0.5	-	<1	0.010	-	-
6	202242	<5	<5	50	<0.5	-	<1	0.030	-	-
7	202243	<5	10	50	<0.5	-	1	<0.008	<0.008	-
8	202244	5	10	40	<0.5	-	1	<0.008	-	-
9	202245	<5	10	20	<0.5	-	<1	0.010	-	-
10	202246	<5	5	50	<0.5	-	<1	0.010	-	-
11	202247	5	10	55	<0.5	-	1	<0.008	-	-
12	202248	<5	5	30	<0.5	-	<1	<0.008	-	-
13	202249	<5	5	15	<0.5	-	<1	<0.008	-	-
14	202250	<5	10	25	<0.5	-	<1	<0.008	-	-
15	202251	<5	15	25	<0.5	-	1	<0.008	-	-
16	202252	<5	5	5	<0.5	-	1	<0.008	<0.008	-
17	202253	<5	<5	<5	<0.5	-	<1	0.020	<0.008	-
18	202254	<5	10	5	<0.5	-	<1	<0.008	-	-
19	202255	<5	10	5	<0.5	-	<1	0.020	-	-
20	202256	<5	<5	25	<0.5	-	1	<0.008	-	-
21	202257	<5	10	15	<0.5	-	<1	<0.008	-	-
22	202258	25	55	300	<0.5	-	1	0.010	-	-
23	202259	<5	<5	5	<0.5	-	<1	<0.008	-	-
24	202260	<5	5	50	<0.5	-	<1	<0.008	-	-
25	202353	<5	15	25	<0.5	-	1	<0.008	<0.008	-

Water loo Creek.

Soil Samples

Soil Samples Voyager Rd.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	2 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202354	<5	95	115	<0.5	–	<1	<0.008	–	–
2	202355	<5	20	95	<0.5	–	1	<0.008	–	–
3	202356	<5	10	70	<0.5	–	1	<0.008	–	–
4	202357	<5	65	50	<0.5	–	1	<0.008	–	–
5	202358	<5	10	30	<0.5	–	1	<0.008	–	–
6	202359	<5	45	35	<0.5	–	1	<0.008	–	–
7	202360	<5	5	120	<0.5	–	1	<0.008	–	16 –
8	202361	125	370	65	<0.5	–	2	<0.008	–	–
9	202362	<5	35	140	<0.5	–	<1	<0.008	–	Voyager –
10	202363	<5	10	190	<0.5	–	2	<0.008	<0.008	–
11	202364	<5	50	65	<0.5	–	<1	<0.008	–	–
12	202365	<5	5	30	<0.5	–	<1	<0.008	–	–
13	202366	30	330	95	<0.5	–	3	<0.008	–	–
14	202367	25	430	515	<0.5	–	1	<0.008	–	–
15	202368	<5	5	25	<0.5	–	<1	<0.008	–	Samples –
16	202369	10	<5	30	<0.5	–	1	<0.008	–	–
17	202370	10	<5	25	<0.5	–	1	<0.008	–	–
18	202371	<5	<5	<5	<0.5	–	<1	<0.008	–	–
19	202372	<5	<5	60	<0.5	–	1	<0.008	–	
20	202373	5	<5	70	<0.5	–	<1	<0.008	–	Soil –
21	202374	20	175	245	<0.5	–	<1	<0.008	<0.008	
22	202375	5	<5	55	<0.5	–	1	<0.008	–	
23	202376	<5	<5	5	<0.5	–	1	<0.008	–	–
24	202377	5	<5	65	<0.5	–	<1	<0.008	–	–
25	202378	5	10	80	<0.5	–	1	<0.008	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	3 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202379	<5	10	35	<0.5	–	1	<0.008	–	–
2	202380	<5	10	30	<0.5	–	<1	<0.008	–	–
3	202381	<5	<5	<5	<0.5	–	<1	0.080	–	–
4	202382	<5	<5	10	<0.5	–	<1	0.070	–	–
5	202383	5	<5	15	<0.5	–	<1	<0.008	–	–
6	202384	5	15	10	<0.5	–	1	<0.008	–	–
7	202385	5	10	45	<0.5	–	<1	<0.008	–	16 –
8	202386	5	90	30	<0.5	–	3	<0.008	<0.008	–
9	202387	5	85	40	<0.5	–	2	<0.008	–	Voyager –
10	202388	<5	<5	5	<0.5	–	<1	<0.008	–	–
11	202389	25	50	320	<0.5	–	2	<0.008	–	–
12	202390	5	15	125	<0.5	–	1	0.050	–	–
13	202391	<5	<5	5	<0.5	–	1	<0.008	–	–
14	202392	<5	<5	5	<0.5	–	<1	<0.008	–	Samples –
15	202393	<5	<5	15	<0.5	–	1	<0.008	–	–
16	202394	<5	10	25	<0.5	–	1	<0.008	–	–
17	202395	10	<5	15	<0.5	–	<1	<0.008	–	–
18	202396	5	5	110	<0.5	–	1	<0.008	<0.008	Soil –
19	202397	<5	5	15	<0.5	–	1	0.010	–	–
20	202398	<5	<5	10	<0.5	–	1	<0.008	–	–
21	202399	5	<5	<5	<0.5	–	1	<0.008	–	–
22	202400	10	10	20	<0.5	–	8	<0.008	–	–
23	202401	15	20	10	<0.5	–	1	<0.008	–	Soil Sample Ck Waterloo E.M. Anomaly
24	202402	<5	5	10	<0.5	–	4	<0.008	–	–
25	202403	5	15	10	<0.5	–	1	<0.008	–	–

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	4 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202404	5	15	70	<0.5	–	1	<0.008	<0.008	–
2	202405	10	20	150	<0.5	–	2	<0.008	–	–
3	202406	<5	<5	5	<0.5	–	1	<0.008	–	–
4	202407	<5	<5	10	<0.5	–	1	<0.008	–	–
5	202408	<5	<5	5	<0.5	–	1	<0.008	–	–
6	202409	<5	5	15	<0.5	–	<1	<0.008	–	–
7	202410	5	20	15	<0.5	–	<1	<0.008	–	–
8	202411	<5	5	15	<0.5	–	1	0.020	<0.008	–
9	202412	<5	20	90	<0.5	–	2	<0.008	–	–
10	202413	<5	15	75	<0.5	–	<1	<0.008	–	–
11	202414	<5	<5	40	<0.5	–	<1	<0.008	–	–
12	202415	<5	<5	25	<0.5	–	<1	<0.008	–	–
13	202416	<5	10	40	<0.5	–	<1	<0.008	–	–
14	202417	<5	<5	30	<0.5	–	<1	<0.008	–	–
15	202418	<5	5	15	<0.5	–	<1	<0.008	–	–
16	202419	<5	10	50	<0.5	–	<1	<0.008	–	–
17	202420	<5	10	255	<0.5	–	<1	<0.008	–	–
18	202421	<5	10	135	<0.5	–	<1	<0.008	<0.008	–
19	202422	<5	10	70	<0.5	–	<1	<0.008	–	–
20	202423	<5	10	15	<0.5	–	<1	<0.008	–	–
21	202424	<5	<5	30	<0.5	–	2	<0.008	–	–
22	202425	<5	10	15	<0.5	–	<1	<0.008	–	–
23	202451	<5	15	70	<0.5	–	<1	<0.008	–	–
24	202452	<5	120	60	0.5	–	<1	<0.008	–	–
25	202453	<5	10	40	<0.5	–	<1	0.070	–	–

Soil Samples – Waterloo Creek – E. M. Anomaly 14.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	5 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202454	<5	15	20	<0.5	–	<1	<0.008	<0.008	–
2	202455	<5	110	20	<0.5	–	<1	0.020	–	–
3	202456	<5	10	15	<0.5	–	<1	<0.008	–	Soil Samples Water 100 Creek EM Anomaly 114
4	202457	<5	10	15	<0.5	–	<1	<0.008	–	
5	202458	<5	10	20	<0.5	–	<1	<0.008	–	
6	202459	<5	10	45	<0.5	–	<1	<0.008	–	
7	202460	<5	5	20	<0.5	–	<1	<0.008	<0.008	
8	202461	<5	10	20	<0.5	–	<1	<0.008	–	–
9	202462	<5	100	220	<0.5	–	1	<0.008	–	–
10	202463	<5	5	40	<0.5	–	<1	<0.008	–	–
11	202464	<5	55	135	<0.5	–	<1	0.010	–	–
12	202465	<5	10	100	<0.5	–	<1	<0.008	–	–
13	202466	<5	5	20	<0.5	–	<1	<0.008	–	–
14	202467	<5	20	270	<0.5	–	<1	<0.008	–	–
	202468	<5	10	110	<0.5	–	<1	<0.008	–	–
16	202469	<5	15	180	<0.5	–	<1	<0.008	–	–
17	202470	<5	115	235	<0.5	–	2	<0.008	<0.008	–
18	202471	<5	25	65	<0.5	–	<1	<0.008	–	–
19	202472	<5	15	70	<0.5	–	<1	<0.008	–	–
20	202473	<5	10	30	<0.5	–	<1	<0.008	–	–
21	202474	5	20	15	<0.5	–	3	<0.008	–	–
22	202475	10	90	230	<0.5	–	3	<0.008	–	–
23	202476	<5	5	140	<0.5	–	3	0.010	–	–
24	202477	<5	<5	35	<0.5	–	2	<0.008	–	–
25	202478	<5	85	50	<0.5	–	2	<0.008	–	–

Soil Samples Mt Osmund East Line 15.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	6 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh	
1	202479	<5	50	45	<0.5	–	2	<0.008	<0.008	–	Soil Samples Mt Osmund Line 15
2	202480	5	20	70	<0.5	–	2	<0.008	–	–	
3	202481	<5	15	135	<0.5	–	3	<0.008	–	–	
4	202482	5	15	35	<0.5	–	2	0.090	–	–	
5	202483	5	10	25	<0.5	–	2	<0.008	–	–	
6	202484	5	5	30	<0.5	–	2	<0.008	<0.008	–	
7	202485	<5	<5	25	<0.5	–	2	0.020	–	–	
8	202486	<5	5	25	<0.5	–	3	<0.008	–	–	Soil Samples East Line
9	202487	<5	20	10	<0.5	–	1	<0.008	–	–	
10	202488	5	10	60	<0.5	–	3	<0.008	–	–	
11	202489	10	75	200	<0.5	–	3	<0.008	–	–	
12	202490	5	10	105	<0.5	–	2	0.030	–	–	
13	202491	65	175	420	<0.5	–	2	<0.008	–	–	Soil Samples Osmund East Lg.
14	202492	5	10	170	<0.5	–	<1	0.020	0.020	–	
15	202493	5	15	30	<0.5	–	2	<0.008	–	–	
16	202494	<5	5	5	<0.5	–	<1	0.010	–	–	Soil Mt. Osmund Line
17	202495	<5	<5	10	<0.5	–	<1	1.850	–	–	
18	171569	5	25	35	<0.5	–	<1	1.970	–	–	Stream Sediment
19	171570	<5	10	<5	<0.5	–	<1	0.840	–	–	Voyager 16
20	171576	<5	<5	<5	<0.5	–	<1	<0.008	–	–	Stream Sediment Samples Hudson River
21	171577	<5	<5	<5	<0.5	–	<1	<0.008	–	–	
22	171578	<5	10	5	<0.5	–	<1	<0.008	–	–	
23	171579	<5	<5	<5	<0.5	–	<1	0.010	–	–	
24	171580	<5	<5	<5	<0.5	–	<1	<0.008	–	–	
25	171722	<5	<5	<5	<0.5	–	<1	<0.008	–	–	Stream Sediment Lewis River

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827431	7 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh	
1	171723	<5	5	<5	<0.5	–	<1	<0.008	<0.008	–	
2	171724	5	5	5	<0.5	–	<1	0.040	–	–	
3	171725	<5	5	10	<0.5	–	<1	0.070	–	–	
4	171726	<5	15	35	<0.5	–	<1	0.010	–	–	
5	171727	<5	<5	<5	<0.5	–	<1	<0.008	–	–	
6	171728	<5	<5	<5	<0.5	–	<1	<0.008	–	–	Sediment Sample Region
7	171729	<5	5	65	<0.5	–	1	0.110	–	–	
8	171730	<5	<5	<5	<0.5	–	<1	0.010	<0.008	–	
9	171731	<5	<5	<5	<0.5	–	<1	<0.008	–	–	
10	171732	<5	5	10	<0.5	–	<1	<0.008	–	–	Stream Lewis River
11	171733	<5	10	15	<0.5	–	1	0.020	–	–	
12	171734	<5	<5	<5	<0.5	–	<1	0.700	–	–	
13	171735	<5	20	15	<0.5	–	<1	0.290	–	–	-80#
14	171736	<5	<5	<5	<0.5	–	<1	<0.008	–	–	
15	171737	<5	10	<5	<0.5	–	<1	0.480	–	–	
16	202017	<5	5	<5	<0.5	–	<1	<0.008	–	–	-80# Stream Sediment
17	202018	<5	<5	<5	<0.5	–	<1	<0.008	<0.008	–	Voyager 25.
18	202165	<5	<5	<5	<0.5	–	<1	<0.008	–	–	-80#
19	202167	<5	<5	<5	<0.5	–	1	<0.008	–	–	Sediment -80# Stream Porphyry Contact.
20	202169	<5	<5	<5	<0.5	–	<1	<0.008	–	–	
21	202171	5	<5	<5	<0.5	–	<1	0.010	–	–	
22	202173	5	<5	<5	<0.5	–	<1	<0.008	–	–	
23	202175	<5	10	15	<0.5	–	<1	<0.008	–	–	
24	202177	<5	10	<5	<0.5	–	<1	<0.008	–	–	
25	202179	<5	<5	<5	<0.5	–	<1	<0.008	–	–	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	48271 31	8 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202181	<5	10	<5	<0.5	–	<1	<0.008	–	Stream Sediment - Soft Porphyry Contact.
2	202183	<5	10	<5	<0.5	–	<1	0.040	0.008	
3	202184	<5	5	<5	<0.5	–	<1	0.070	–	–
4	202185	<5	<5	<5	<0.5	–	1	0.030	–	–
5	202186	<5	5	<5	<0.5	–	1	0.260	–	– Soft Stream Sediment Voyager 10.
6	202187	<5	10	5	<0.5	–	<1	0.050	–	
7	202188	<5	<5	15	<0.5	–	1	<0.008	–	
8	202189	5	5	20	<0.5	–	3	<0.008	–	
9	202301	<5	<5	<5	<0.5	–	1	<0.008	–	–
10	202302	<5	<5	5	<0.5	–	1	<0.008	–	–
11	202303	<5	<5	5	<0.5	–	1	0.070	0.010	–
12	202304	<5	<5	<5	<0.5	–	1	<0.008	–	– Samples –
13	202305	<5	<5	<5	<0.5	–	1	<0.008	–	–
14	202306	<5	<5	<5	<0.5	–	2	0.270	–	–
15	202307	<5	<5	<5	<0.5	–	1	<0.008	–	–
16	202308	<5	<5	<5	<0.5	–	1	<0.008	–	– Sediment Contact. –
17	202309	<5	5	<5	<0.5	–	1	<0.008	–	–
18	202310	<5	<5	<5	<0.5	–	1	<0.008	–	–
19	202311	<5	<5	<5	<0.5	–	1	<0.008	–	–
20	202312	<5	<5	20	<0.5	–	1	<0.008	–	– Stream Porphyry –
21	202313	5	15	15	<0.5	–	1	0.550	–	–
22	202314	5	5	10	<0.5	–	1	0.790	0.790	–
23	202315	<5	5	10	<0.5	–	1	2.680	2.130	– Soft –
24	202316	<5	<5	20	<0.5	–	2	1.160	–	–
25	202317	<5	<5	15	<0.5	–	2	<0.008	–	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	9 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202318	<5	<5	<5	<0.5	–	1	<0.008	<0.008	–
2	202319	<5	<5	10	<0.5	–	1	0.030	<0.008	
3	202320	<5	<5	10	<0.5	–	2	<0.008	–	
4	202321	<5	5	10	<0.5	–	2	<0.008	–	
5	202322	<5	10	10	<0.5	–	2	<0.008	–	
6	202323	10	15	20	<0.5	–	2	0.030	–	
7	202497	<5	5	5	<0.5	–	2	<0.008	<0.008	
8	202499	<5	<5	5	<0.5	–	2	0.080	–	
9	202501	<5	<5	10	<0.5	–	2	<0.008	–	
10	202503	<5	<5	70	<0.5	–	2	<0.008	–	
11	202505	<5	<5	20	<0.5	–	1	<0.008	–	
12	202507	<5	<5	<5	<0.5	–	2	0.010	–	
13	202509	<5	<5	10	<0.5	–	2	0.050	–	
14	202511	<5	<5	10	<0.5	–	5	<0.008	<0.008	
15	202513	<5	10	10	<0.5	–	4	<0.008	–	
16	202515	<5	<5	15	<0.5	–	2	<0.008	–	
17	202517	<5	<5	45	<0.5	–	1	<0.008	–	
18	202519	40	5	20	<0.5	–	1	<0.008	–	
19	202520	<5	<5	5	<0.5	–	2	<0.008	–	
20	202522	<5	<5	10	<0.5	–	3	<0.008	–	
21	202524	<5	25	10	<0.5	–	2	0.010	–	
22	202526	<5	15	15	<0.5	–	3	<0.008	–	
23	202526	5	10	15	<0.5	–	3	0.270	–	
24	202530	<5	<5	10	<0.5	–	3	<0.008	<0.008	
25	71619	<5	25	35	1.0	–	3	2.270	–	46.2

- 1 Box Stream Sediment Samples - Voyager 10.
- ~80# Stream Sediment Samples Porphyry Contact.
- ~80# Stream Sediment Samples Barrell Creek.

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827[illegible]31	10 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	171620	5	10	20	0.5	–	2	18.330	–	30.2
2	171625	<5	5	10	<0.5	–	3	0.030	0.030	276.2
3	171626	<5	<5	<5	<0.5	–	3	<0.008	–	269.8
4	171627	<5	10	5	<0.5	–	3	<0.008	–	296.5
5	171628	<5	<5	<5	<0.5	–	3	<0.008	–	279.2
6	171629	<5	10	<5	<0.5	–	3	<0.008	–	252.1
7	171630	<5	10	<5	<0.5	–	2	<0.008	–	145.3
8	202012	<5	15	<5	<0.5	–	3	<0.008	–	265.4
9	202013	<5	10	<5	<0.5	–	3	<0.008	–	303.4
10	202014	<5	10	10	<0.5	–	2	<0.008	–	199.6
11	202015	<5	5	<5	<0.5	–	3	<0.008	–	196.1
12	202016	<5	<5	<5	<0.5	–	3	<0.008	<0.008	258.4
13	202033	<5	<5	<5	<0.5	–	1	0.150	–	252.1
14	202034	<5	<5	<5	<0.5	–	2	0.570	–	233.2
[illegible]	202035	<5	5	<5	<0.5	–	3	<0.008	–	201.5
16	202036	<5	<5	<5	<0.5	–	3	0.330	–	162.3
17	202037	<5	5	<5	<0.5	–	3	0.610	–	150.8
18	202038	<5	<5	<5	<0.5	–	3	0.600	–	295.3
19	202039	<5	10	<5	<0.5	–	3	0.040	–	123.4
20	202124	<5	<5	<5	<0.5	–	2	2.530	–	169.2
21	202125	<5	5	10	<0.5	–	3	9.940	–	263.8
22	202126	<5	<5	<5	<0.5	–	2	0.040	0.3[illegible]0	241.6
23	202127	<5	<5	<5	<0.5	–	3	3.600	–	220.2
24	202128	<5	5	15	<0.5	–	2	0.050	–	143.4
25	202129	<5	<5	<5	<0.5	–	2	0.050	–	235.0

Panned Concentrates Mudson River.

-80# Stream Sediment Sample Porphyry Contact.

Panned Concentrates Porphyry Contact.

Panned Concentrates Lewis River.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	48271 31	11 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202130	<5	<5	<5	<0.5	–	4	<0.008	–	141.9
2	202131	<5	<5	50	<0.5	–	4	1.460	–	237.8
3	202132	<5	5	<5	<0.5	–	2	<0.008	–	253.1
4	202133	<5	<5	<5	<0.5	–	3	<0.008	–	212.8
5	202134	<5	<5	15	<0.5	–	3	0.770	–	122.6
6	202135	<5	<5	20	<0.5	–	4	0.250	–	266.3
7	202136	<5	<5	<5	<0.5	–	3	<0.008	<0.008	334.1
8	202137	<5	10	10	<0.5	–	3	0.230	–	187.1
9	202138	<5	<5	<5	<0.5	–	3	<0.008	–	345.2
10	202139	<5	10	10	<0.5	–	4	24.270	15.630	439.2
11	202164	<5	<5	<5	<0.5	–	3	0.010	–	158.3
12	202166	<5	<5	<5	<0.5	–	3	0.490	–	63.4
13	202168	<5	<5	<5	<0.5	–	3	<0.008	–	53.4
14	202170	<5	<5	<5	<0.5	–	3	<0.008	–	78.5
15	202172	<5	<5	<5	<0.5	–	4	<0.008	–	77.6
16	202174	<5	<5	<5	1.5	–	3	34.830	–	55.3
17	202176	<5	5	<5	<0.5	–	3	2.950	2.270	99.1
18	202178	<5	<5	<5	<0.5	–	3	1.180	–	95.8
19	202180	<5	<5	<5	<0.5	–	3	0.730	–	66.1
20	202182	<5	<5	5	<0.5	–	2	0.830	–	61.4
21	202198	<5	10	10	<0.5	–	5	5.470	–	112.8
22	202199	<5	<5	20	<0.5	–	1	0.290	–	96.1
23	202324	<5	<5	30	<0.5	–	3	0.090	–	83.1
24	202325	<5	<5	<5	<0.5	–	4	56.000	22.820	114.8
25	202326	<5	<5	5	<0.5	–	4	37.870	–	74.8

Panned Concentrates Porphyry Contact.

Panned Concentrates Porphyry Contact.

Panned Concentrates Voyager 10.

Results in ppm unless otherwise specified
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X = element concentration is below detection limit
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	12 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202327	<5	<5	5	<0.5	-	<1	17.270	-	103.5
2	202328	<5	25	15	<0.5	-	3	6.370	3[illegible]340	186.4
3	202329	<5	15	5	<0.5	-	3	0.060	-	113.1
4	202330	<5	<5	20	1.0	-	2	18.270	-	70.6
5	202331	<5	15	60	<0.5	-	13	4.640	-	124.6
6	202332	<5	10	10	<0.5	-	2	6.630	-	105.5
7	202333	<5	<5	15	<0.5	-	3	25.080	-	50.5
8	202334	<5	5	5	<0.5	-	2	0.750	-	175.4
9	202335	<5	5	5	<0.5	-	2	1.210	-	105.3
10	202336	<5	10	10	<0.5	-	2	1.250	-	97.5
11	202337	<5	15	20	2.0	-	3	95.330	85.020	82.8
12	202338	<5	20	20	<0.5	-	3	23.470	-	77.5
13	202339	<5	20	20	<0.5	-	2	13.400	-	110.8
14	202340	<5	<5	<5	<0.5	-	2	<0.008	-	83.1
15	202341	<5	<5	<5	<0.5	-	2	<0.008	-	111.2
16	202342	<5	<5	<5	<0.5	-	1	0.110	-	95.2
17	202343	<5	45	10	<0.5	-	2	0.450	-	64.4
18	202344	<5	<5	<5	<0.5	-	2	0.110	-	99.7
19	202345	<5	20	5	<0.5	-	2	0.670	0.320	96.2
20	202346	<5	<5	5	<0.5	-	3	0.010	-	60.7
21	202347	<5	15	10	0.5	-	2	51.000	48.87[illegible]	72.2
22	202348	<5	15	<5	<0.5	-	2	<0.008	-	63.5
23	202349	<5	<5	<5	<0.5	-	1	1.190	-	83.7
24	202350	<5	<5	<5	<0.5	-	2	<0.008	-	61.9
25	202496	<5	<5	10	<0.5	-	2	2.030	-	77.6

Planned Concentrates Voyager 10.

Planned Concentrates Voyager 10.

Planned Concentrates Voyager South.

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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	13 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202498	<5	<5	5	<0.5	–	2	1.670	–	76.5
2	202500	<5	<5	10	<0.5	–	3	3.210	–	83.2
3	202502	<5	<5	10	<0.5	–	3	8.910	–	108.5
4	202504	<5	<5	5	<0.5	–	4	0.710	–	72.1
5	202506	<5	5	<5	0.5	–	3	30.270	–	132.5
6	202508	<5	<5	<5	1.0	–	4	39.330	–	60.3
7	202510	<5	<5	15	<0.5	–	4	1.160	2.590	77.2
8	202512	10	5	10	<0.5	–	4	<0.008	–	85.8
9	202514	<5	<5	35	<0.5	–	4	0.070	–	77.0
10	202516	<5	<5	10	<0.5	–	3	0.030	–	84.6
11	202518	20	<5	30	<0.5	–	7	27.000	–	83.2
12	202521	<5	<5	5	<0.5	–	3	0.750	–	89.1
13	202523	<5	<5	20	<0.5	–	3	<0.008	–	111.7
14	202525	<5	5	5	<0.5	–	2	5.470	4.020	96.5
15	202527	5	15	30	<0.5	–	4	31.410	–	78.4
16	202529	<5	20	50	1.0	–	4	67.200	–	71.9
17	202531	15	15	50	3.0	–	5	100.57	–	46.4
18	171969	15	<5	<5	<0.5	–	1	<0.008	–	–
19	171970	20	10	25	<0.5	–	2	<0.008	–	–
20	171971	15	20	65	<0.5	–	2	<0.008	–	–
21	171972	35	110	490	<0.5	–	59	<0.008	–	–
22	171973	15	120	250	<0.5	–	8	<0.008	–	–
23	180585	15	15	255	<0.5	–	2	<0.008	–	–
24	180586	25	<5	235	<0.5	–	1	<0.008	–	–
25	180587	20	<5	<5	<0.5	–	<1	<0.008	–	–

Planned Concentrate Porphyry Contact

Concentrates Barrel Creek.

Rock Chip Voyager 6

Rock Chip Voyager 24.

Rock Chip Waterloo Creek.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	11/03/87	4827/31	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	180588	15	<5	5	<0.5	–	<1	0.020	Rock chip Waterloo Creek.	–
2	180589	30	<5	<5	<0.5	–	1	0.070		–
3	180590	20	<5	10	<0.5	–	<1	<0.008		–
4	180591	45	<5	15	<0.5	–	1	<0.008		–
5	180592	15	<5	10	<0.5	–	<1	<0.008	Rock Chip Hibbs Point	–
6	180593	<5	40	45	<0.5	–	2	<0.008	–	–
7	180594	65	370	610	<0.5	–	2	0.030	–	–
8	180595	10	10	125	<0.5	–	1	0.040	–	–
9	180596	24	85	150	<0.5	–	2	<0.008	–	–
10	180598	<5	370	315	<0.5	–	<1	<0.008	Rock Chip Voyager 10.	–
11	180599	30	<5	10	<0.5	–	<1	<0.008	<0.008	–
12	180600	10	<5	60	<0.5	–	<1	<0.008	–	–
13	202200	540	25	160	<0.5	–	3410	0.110	–	–
14	202426	10	5	25	<0.5	–	71	0.040	Rock Chip Waterloo OK.	–
15	202551	10	<5	40	<0.5	–	4	<0.008		–
16	202552	15	5	35	<0.5	–	1	<0.008	Rock Chip Voyager 10	–
17	202553	5	15	95	<0.5	–	5	0.080		–
18	202554	690	170	780	–	12	17400	0.780	–	–
19	202555	10	5	5	<0.5	–	200	<0.008	–	–
20	202556	60	135	25	1.0	–	17100	0.090	–	–
21	202557	25	285	510	<0.5	–	85	<0.008	Rock Chip Barrel Creek	–
22	202558	15	<5	45	<0.5	–	54	<0.008		–
23	202559	35	5	30	<0.5	–	55	<0.008		–
24	202560	20	40	20	<0.5	–	880	<0.008		–
25	202561	305	80	220	2.5	–	15	<0.008	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04222	10/03/87	4827/31	2 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Au	AuChk	Wgh
1	202562	610	25	40	2.0	-	160	0.100	Rock Chip	-
2	202563	400	135	85	<0.5	-	540	0.030	Barrel	-
3	171975	35	<5	60	<0.5	-	5	<0.008	Creek.	-
4	171976	45	180	120	1.0	-	55	<0.008	-	-
5										
6										
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17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	2	1	0.008	0.008	0.1
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	104	114	309	309	199

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Phone (09) 458 7999 52 Murray Road, Welshpool, W.A. 6106 Telex AA92560

ANALYTICAL REPORT No. 7.5.08.04247

See page 10 for Sample Descriptions

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
E 00254	DN 3452

DATE RECEIVED	RESULTS REQUIRED
19/02/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
18	11/03/87	1	206

STATE OF SAMPLES (ENTER BELOW)	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	RO	Prep: 005,009,012,013,017						Cu,Pb,Zn,Ag/101,As/114		
	Various	RO							Au,AuChk/313		
	Various	SS	Prep: 005,013,017						Cu,Pb,Zn,Ag/101,As/114		
	Various	SS							Au,AuChk/309		
	Various	PC	Prep: 005,013,017						Cu,Pb,Zn,Ag/101,As/114,Mgh/199		

RESULTS TO

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO

C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER C. J. Scott

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ANALYTICAL DATA

See page 10 for Sample Details

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	1 of 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171439	5	25	–	275	<0.5	–	310	–	<0.005
2	171440	40	35	–	70	<0.5	–	3	–	<0.005
3	171441	<5	140	–	345	<0.5	–	150	–	<0.005
4	171442	<5	<5	–	20	<0.5	–	2	–	<0.005
5	171443	30	270	–	45	<0.5	–	84	–	<0.005
6	171444	45	310	–	395	<0.5	–	35	–	0.025
7	171449	380	85	–	110	<0.5	–	1130	–	<0.005
8	171450	630	315	–	105	<0.5	–	890	–	<0.005
9	202427	50	25	–	100	<0.5	–	24	–	<0.005
10	202428	5	5	–	70	<0.5	–	7	–	<0.005
11	202429	105	500	–	85	2.5	–	55500	–	0.040
12	202430	620	430	–	115	–	10	3710	–	<0.005
13	202431	55	345	–	30	1.5	–	5380	–	<0.005
14	202432	10	10	–	50	<0.5	–	82	–	<0.005
15	202433	20	<5	–	70	<0.5	–	32	–	<0.005
16	202434	<5	<5	–	10	<0.5	–	9	–	<0.005
17	202435	5	25	–	295	<0.5	–	12	–	<0.005
18	202436	<5	<5	–	30	<0.5	–	6	–	<0.005
19	202437	<5	20	–	245	<0.5	–	5	–	<0.005
20	202438	<5	10	–	90	<0.5	–	19	–	<0.005
21	202439	95	775	–	105	1.0	–	320	–	<0.005
22	202440	430	685	–	215	1.5	–	2040	–	<0.005
23	202441	170	120	–	55	<0.5	–	850	–	<0.005
24	202442	<5	10	–	15	<0.5	–	12	–	<0.005
25	202443	105	780	–	45	1.5	–	1030	–	<0.005

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	2 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	202444	185	–	1525	320	2.0	–	1980	–	0.040
2	202445	45	35	–	50	<0.5	–	260	–	<0.005
3	202446	770	380	–	35	1.5	–	1600	–	0.060
4	202447	215	665	–	285	0.5	–	1530	–	1.010
5	202448	<5	<5	–	20	<0.5	–	13	–	<0.005
6	202449	70	180	–	25	0.5	–	590	–	0.035
7	202450	255	880	–	210	4.5	–	5520	–	0.235
8	202564	140	5	–	50	<0.5	–	82	–	0.050
9	202565	35	<5	–	50	<0.5	–	34	–	<0.005
10	202566	<5	<5	–	40	<0.5	–	5	–	<0.005
11	202567	<5	<5	–	<5	<0.5	–	4	–	<0.005
12	202568	21500	<5	–	70	<0.5	–	4	–	<0.005
13	202569	240	<5	–	65	<0.5	–	8	–	<0.005
14	202570	1450	25	–	75	<0.5	–	14	–	0.055
15	202701	805	650	–	80	2.0	–	1180	–	0.040
16	202702	460	195	–	140	<0.5	–	1650	–	<0.005
17	202703	690	240	–	345	1.0	–	30	–	0.290
18	202704	80	705	–	40	1.5	–	960	–	<0.005
19	202705	25	55	–	15	0.5	–	280	–	<0.005
20	202706	445	200	–	95	0.5	–	1570	–	1.630
21	202707	600	445	–	135	1.0	–	970	–	0.025
22	202708	35	10	–	10	0.5	–	70	–	<0.005
23	202709	410	–	1875	270	–	7	3560	–	0.680
24	202710	165	80	–	95	0.5	–	1350	–	<0.005
25	202711	80	540	650	10	–	10	4790	–	0.120

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	3 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	202712	10	25	–	15	<0.5	–	140	–	<0.005
2	171581	<5	<5	–	5	<0.5	–	1	<0.008	–
3	171582	<5	<5	–	5	<0.5	–	1	<0.008	–
4	171583	<5	<5	–	10	<0.5	–	1	<0.008	–
5	171584	<5	<5	–	<5	<0.5	–	1	<0.008	–
6	171585	<5	<5	–	10	<0.5	–	1	<0.008	–
7	171586	10	<5	–	5	<0.5	–	1	<0.008	–
8	171587	<5	<5	–	20	<0.5	–	1	<0.008	–
9	171588	<5	10	–	20	<0.5	–	1	<0.008	–
10	171589	<5	<5	–	5	<0.5	–	1	<0.008	–
11	171590	<5	<5	–	5	<0.5	–	<1	<0.008	–
12	171591	5	<5	–	10	<0.5	–	1	<0.008	–
13	171592	<5	<5	–	<5	<0.5	–	<1	<0.008	–
14	171593	<5	<5	–	5	<0.5	–	1	<0.008	–
15	171594	<5	<5	–	5	<0.5	–	<1	<0.008	–
16	171595	5	<5	–	10	<0.5	–	1	<0.008	–
17	171596	15	10	–	15	<0.5	–	1	<0.008	–
18	171600	5	<5	–	<5	<0.5	–	1	<0.008	–
19	171738	<5	<5	–	10	<0.5	–	<1	<0.008	–
20	171739	<5	<5	–	15	<0.5	–	1	<0.008	–
21	171740	<5	<5	–	10	<0.5	–	<1	<0.008	–
22	171741	5	<5	–	15	<0.5	–	<1	<0.008	–
23	171742	<5	<5	–	20	<0.5	–	<1	<0.008	–
24	171743	<5	<5	–	30	<0.5	–	<1	<0.008	–
25	171744	5	<5	–	10	<0.5	–	2	<0.008	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	4 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171745	15	<5	–	5	<0.5	–	5	<0.008	–
2	171746	5	<5	–	30	<0.5	–	7	<0.008	–
3	171747	15	<5	–	10	<0.5	–	2	<0.008	–
4	171748	5	<5	–	10	<0.5	–	2	<0.008	–
5	202019	<5	<5	–	<5	<0.5	–	<1	<0.008	–
6	202020	<5	<5	–	<5	<0.5	–	<1	<0.008	–
7	202021	10	20	–	15	<0.5	–	1	<0.008	–
8	202022	5	<5	–	15	<0.5	–	1	<0.008	–
9	202023	5	<5	–	15	<0.5	–	1	<0.008	–
10	202024	15	20	–	20	<0.5	–	1	<0.008	–
11	202025	<5	<5	–	10	<0.5	–	1	<0.008	–
12	202190	10	<5	–	15	<0.5	–	1	<0.008	–
13	202191	10	<5	–	15	<0.5	–	1	<0.008	–
14	202192	15	<5	–	20	<0.5	–	1	<0.008	–
15	202193	10	<5	–	20	<0.5	–	<1	<0.008	–
16	202532	30	<5	–	20	<0.5	–	1	<0.008	–
17	202534	15	5	–	20	<0.5	–	1	<0.008	–
18	202536	15	<5	–	15	<0.5	–	1	<0.008	–
19	202538	15	<5	–	5	<0.5	–	3	<0.008	–
20	202641	5	<5	–	10	<0.5	–	<1	<0.008	–
21	202642	<5	<5	–	5	<0.5	–	<1	<0.008	–
22	202643	<5	<5	–	5	<0.5	–	1	<0.008	–
23	202644	<5	10	–	30	<0.5	–	1	<0.008	–
24	202645	<5	10	–	10	<0.5	–	1	<0.008	–
25	202646	<5	65	–	15	<0.5	–	<1	<0.008	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	5 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	202647	<5	<5	–	5	<0.5	–	<1	<0.008	–
2	202648	<5	10	–	15	<0.5	–	1	<0.008	–
3	202649	<5	15	–	30	0.5	–	1	<0.008	–
4	202650	<5	5	–	10	<0.5	–	1	<0.008	–
5	202664	<5	5	–	10	<0.5	–	1	<0.008	–
6	202665	<5	<5	–	<5	<0.5	–	<1	<0.008	–
7	202666	<5	15	–	30	<0.5	–	1	0.060	–
8	202667	5	<5	–	10	<0.5	–	1	<0.008	–
9	202668	<5	<5	–	<5	<0.5	–	1	<0.008	–
10	202669	<5	<5	–	10	<0.5	–	1	<0.008	–
11	202670	<5	<5	–	10	<0.5	–	1	<0.008	–
12	202671	10	<5	–	20	<0.5	–	1	<0.008	–
13	202672	<5	<5	–	10	<0.5	–	1	<0.008	–
14	202673	<5	<5	–	10	<0.5	–	1	<0.008	–
15	202674	<5	10	–	15	0.5	–	1	<0.008	–
16	202675	<5	5	–	5	<0.5	–	1	<0.008	–
17	202676	<5	<5	–	5	<0.5	–	<1	<0.008	–
18	202677	<5	<5	–	15	<0.5	–	1	<0.008	–
19	202678	<5	<5	–	10	<0.5	–	<1	<0.008	–
20	202679	<5	5	–	10	<0.5	–	1	0.060	–
21	202680	<5	<5	–	10	<0.5	–	1	<0.008	–
22	202681	<5	<5	–	5	<0.5	–	<1	<0.008	–
23	202682	<5	<5	–	10	<0.5	–	1	<0.008	–
24	171631	<5	<5	–	<5	5.5	–	1	130.00	–
25	171632	<5	<5	–	10	<0.5	–	1	3.570	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	6 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	171633	<5	<5	–	10	<0.5	–	1	0.450	–
2	171634	<5	<5	–	5	<0.5	–	1	0.570	–
3	171635	<5	<5	–	5	<0.5	–	<1	2.010	–
4	171636	<5	<5	–	5	<0.5	–	<1	2.760	–
5	171637	<5	<5	–	15	<0.5	–	<1	0.020	–
6	171638	<5	5	–	25	<0.5	–	1	0.020	–
7	171639	<5	<5	–	<5	<0.5	–	<1	0.010	–
8	171640	<5	<5	–	<5	<0.5	–	<1	0.020	–
9	171641	<5	<5	–	10	<0.5	–	1	3.870	–
10	171642	<5	<5	–	<5	<0.5	–	1	32.810	–
11	171643	<5	<5	–	<5	<0.5	–	<1	0.020	–
12	171644	<5	<5	–	<5	<0.5	–	<1	1.820	–
13	171645	<5	<5	–	<5	<0.5	–	1	<0.008	–
14	171646	<5	<5	–	<5	<0.5	–	1	<0.008	–
15	202026	<5	<5	–	10	<0.5	–	1	4.550	–
16	202027	<5	20	–	15	<0.5	–	<1	4.240	–
17	202028	<5	<5	–	10	1.5	–	<1	37.750	–
18	202029	<5	<5	–	10	2.0	–	<1	89.330	–
19	202030	<5	30	–	10	<0.5	–	1	6.640	–
20	202031	<5	25	–	35	<0.5	–	<1	5.070	–
21	202032	<5	10	–	20	<0.5	–	<1	30.530	–
22	202140	<5	<5	–	30	<0.5	–	<1	0.040	–
23	202141	<5	<5	–	<5	<0.5	–	<1	1.720	–
24	202142	<5	<5	–	10	<0.5	–	<1	<0.008	–
25	202143	<5	<5	–	<5	<0.5	–	1	0.020	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	7 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	202144	<5	<5	–	25	<0.5	–	<1	<0.008	–
2	202145	<5	<5	–	15	<0.5	–	<1	<0.008	–
3	202146	<5	<5	–	5	<0.5	–	1	<0.008	–
4	202147	<5	<5	–	5	<0.5	–	2	<0.008	–
5	202148	<5	<5	–	10	<0.5	–	2	<0.008	–
6	202149	<5	<5	–	<5	<0.5	–	1	<0.008	–
7	202150	<5	<5	–	<5	<0.5	–	1	0.910	–
8	202194	<5	<5	–	70	<0.5	–	1	1.230	–
9	202195	<5	<5	–	175	<0.5	–	1	0.260	–
10	202196	<5	<5	–	20	<0.5	–	<1	0.110	–
11	202197	<5	85	–	240	<0.5	–	1	0.370	–
12	202533	<5	<5	–	5	<0.5	–	<1	0.110	–
13	202535	<5	<5	–	15	<0.5	–	2	4.210	–
14	202537	<5	<5	–	10	<0.5	–	1	<0.008	–
15	202539	<5	<5	–	5	<0.5	–	2	<0.008	–
16	202543	<5	<5	–	<5	<0.5	–	1	<0.008	–
17	202544	<5	<5	–	<5	<0.5	–	1	<0.008	–
18	202601	<5	<5	–	<5	<0.5	–	1	0.610	–
19	202602	20	30	–	15	<0.5	–	1	16.690	–
20	202603	<5	<5	–	15	<0.5	–	1	0.320	–
21	202604	<5	<5	–	50	<0.5	–	3	0.730	–
22	202605	<5	<5	–	10	<0.5	–	1	0.510	–
23	202606	<5	645	–	20	6.0	–	1	5.400	–
24	202607	<5	10	–	15	<0.5	–	1	<0.008	–
25	202608	<5	20	–	35	0.5	–	1	5.600	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	202609	<5	<5	–	5	<0.5	–	1	10.360	–
2	202612	<5	<5	–	10	<0.5	–	1	0.680	–
3	202613	<5	<5	–	10	<0.5	–	1	0.060	–
4	202683	30	35	–	15	1.0	–	2	30.500	–
5	202684	<5	45	–	10	<0.5	–	1	0.590	–
6	202685	<5	5	–	10	0.5	–	1	1.030	–
7	202686	<5	30	–	20	1.0	–	1	36.330	–
8	202687	<5	<5	–	15	1.5	–	1	<0.008	–
9	202688	<5	10	–	15	0.5	–	1	31.680	–
10	202689	<5	<5	–	5	1.5	–	1	163.30	–
11	202690	<5	20	–	15	1.0	–	1	2.620	–
12	202691	<5	<5	–	20	<0.5	–	1	7.150	–
13	202692	<5	<5	–	10	<0.5	–	1	0.400	–
14	202693	<5	<5	–	15	0.5	–	1	0.910	–
15	202694	<5	<5	–	10	<0.5	–	1	1.450	–
16	202695	<5	<5	–	10	<0.5	–	1	5.760	–
17	202696	<5	20	–	15	0.5	–	1	5.170	–
18	202697	<5	10	–	5	<0.5	–	1	0.410	–
19	202698	<5	20	–	10	<0.5	–	1	2.890	–
20	202699	<5	50	–	15	0.5	–	1	0.360	–
21	202700	<5	<5	–	15	1.5	–	1	456.10	–
22	171647	<5	10	–	10	0.5	–	1	8.530	–
23	171648	<5	5	–	10	<0.5	–	1	2.410	–
24	171649	<5	5	–	15	<0.5	–	<1	1.170	–
25	202540	<5	<5	–	5	<0.5	–	1	0.160	–

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	9 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	202541	<5	<5	–	10	<0.5	–	1	0.050	–
2	202542	<5	<5	–	10	<0.5	–	<1	0.040	–
3	202259	10	<5	–	5	<0.5	–	1	–	–
4	202260	5	<5	–	10	<0.5	–	<1	–	–
5	202261	<5	15	–	5	0.5	–	<1	–	–
6	202262	<5	<5	–	5	<0.5	–	<1	–	–
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	25	5	0.5	2	1	0.008	0.005
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	104	101	101	104	114	309	313

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	10 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	Wgh	
1	171439	–	–	–	–	Rock Chip
2	171440	–	–	<0.005	–	Hudson River
3	171441	–	–	–	–	
4	171442	–	–	–	–	
5	171443	–	–	–	–	
6	171444	–	–	–	–	
7	171449	–	–	–	–	Rock Chip Voyager 12.
8	171450	–	–	–	–	Rock Chip
9	202427	–	–	–	–	Rock Chip
10	202428	–	–	<0.005	–	Barrel Creek.
11	202429	–	–	–	–	Rock Chip
12	202430	–	–	–	–	Voyager 2.
13	202431	–	–	–	–	
14	202432	–	–	–	–	
15	202433	–	–	–	–	Rock Chip
16	202434	–	–	–	–	Voyager 16
17	202435	–	–	–	–	
18	202436	–	–	–	–	
19	202437	–	–	<0.005	–	Rock Chip Voyager 3
20	202438	–	–	–	–	
21	202439	–	–	–	–	Rock Chip
22	202440	–	–	–	–	Voyager 12.
23	202441	–	–	–	–	
24	202442	–	–	–	–	
25	202443	–	–	<0.005	–	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Au	AuChk	AuChk	Wgh					
1	202		–	–	–					
2	20		–	–	–		Rock Chip			
3	20		–	–	–		Voyager 12.			
4	20		–	–	–					
5	20		–	–	–					
6	20		–	–	–					
7	20	–	–	–	–					
8	20	–	–	–	–		Rock Chip			
9	20	–	–	–	–		Voyager 9.			
10	20	–	–	<0.005	–	Barr				
11	20	–	–	–	–	Rock	Chip	Voyager 30.		
12	20	–	–	–	–		Voyager 18			
13	20	–	–	–	–		Rock Chip			
14	20	–	–	–	–					
15	20	–	–	–	–					
16	20	–	–	–	–					
17	20	–	–	–	–		Rock Chip.			
18	20	–	–	–	–		Voyage 12			
19	20	–	–	–	–					
20	20	–	–	–	–					
21	202	–	–	–	–					
22	202	–	–	–	–					
23	202	–	–	–	–					
24	202	–	–	<0.005	–					
25	202711	–	–	–	–					

Results in ppm unless otherwise specified
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	12 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	Wgh	
1	202712	–	–	–	–	Rock Chip Voyager 12
2	171581	–	–	–	–	
3	171582	–	–	–	–	-80# Stream
4	171583	–	–	–	–	Sediment Sample
5	171584	–	–	–	–	North Hudson
6	171585	–	–	–	–	River
7	171586	–	–	–	–	
8	171587	–	–	–	–	
9	171588	–	<0.008	–	–	
10	171589	–	–	–	–	
11	171590	–	–	–	–	
12	171591	–	–	–	–	
13	171592	–	–	–	–	
14	171593	–	–	–	–	
15	171594	–	–	–	–	
16	171595	–	–	–	–	
17	171596	–	–	–	–	
18	171600	–	–	–	–	
19	171738	–	<0.008	–	–	– 80# Stream
20	171739	–	–	–	–	Sediment Sample
21	171740	–	–	–	–	Voyager 3.
22	171741	–	–	–	–	
23	171742	–	–	–	–	
24	171743	–	–	–	–	
25	171744	–	–	–	–	– 80 Mesh Stream Sediment Sample Voyager 2

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	13 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	Wgh	
1	171745	–	–	–	–	-80# Stream Sediment
2	171746	–	–	–	–	Sample Voyager 2.
3	171747	–	–	–	–	
4	171748	–	–	–	–	-80# Stream Sediment Sample Kid Creek
5	202019	–	<0.008	–	–	
6	202020	–	–	–	–	-80# Stream Sediment
7	202021	–	–	–	–	Samples
8	202022	–	–	–	–	Porphyry Contact.
9	202023	–	–	–	–	
10	202024	–	–	–	–	
11	202025	–	–	–	–	
12	202190	–	–	–	–	-80# Stream Sediment
13	202191	–	–	–	–	Samples
14	202192	–	<0.008	–	–	Voyager 10 Region
15	202193	–	–	–	–	
16	202532	–	–	–	–	-80# Stream Sediment
17	202534	–	–	–	–	Porphyry
18	202536	–	–	–	–	Contact.
19	202538	–	–	–	–	
20	202641	–	–	–	–	-80# Stream
21	202642	–	–	–	–	Sediment Samples
22	202643	–	–	–	–	Porphyry Contact.
23	202644	–	–	–	–	
24	202645	–	<0.008	–	–	
25	202646	–	–	–	–	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	14 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	Wgh	
1	202647	–	–	–	–	
2	202648	–	–	–	–	
3	202649	–	–	–	–	
4	202650	–	–	–	–	
5	202664	–	–	–	–	
6	202665	–	–	–	–	-80# Stream
7	202666	–	–	–	–	
8	202667	–	–	–	–	Sediment Samples
9	202668	–	<0.008	–	–	
10	202669	–	–	–	–	Porphyry Contact.
11	202670	–	–	–	–	
12	202671	–	–	–	–	
13	202672	–	–	–	–	
14	202673	–	–	–	–	
15	202674	–	–	–	–	
16	202675	–	–	–	–	
17	202676	–	–	–	–	
18	202677	–	–	–	–	
19	202678	–	<0.008	–	–	
20	202679	–	–	–	–	
21	202680	–	–	–	–	
22	202681	–	–	–	–	
23	202682	–	–	–	–	
24	171631	–	160.30	–	58.3	Panned Concentrate
25	171632	–	–	–	56.1	North Hudson River.

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	15 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	Wgh					
1	171633	–	–	–	59.8					
2	171634	–	–	–	64.7					
3	171635	–	–	–	145.5		Panned Concentrate			
4	171636	–	–	–	107.5					
5	171637	–	–	–	102.5		Hudson River.			
6	171638	–	–	–	140.8					
7	171639	–	–	–	103.9					
8	171640	–	–	–	127.3					
9	171641	–	–	–	81.5					
10	171642	–	40.620	–	86.4					
11	171643	–	–	–	124.5					
12	171644	–	–	–	96.0					
13	171645	–	–	–	131.5					
14	171646	–	<0.008	–	124.5					
15	202026	–	–	–	43.6					
16	202027	–	–	–	62.0		Panned Concentrate			
17	202028	–	–	–	58.6					
18	202029	–	88.650	–	65.7		Porphyry Contact			
19	202030	–	–	–	61.1					
20	202031	–	–	–	67.4					
21	202032	–	–	–	51.1					
22	202140	–	–	–	66.6		Panned Concentrate			
23	202141	–	–	–	123.1					
24	202142	–	<0.008	–	118.4		Voyager 3.			
25	202143	–	–	–	113.4					

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	16 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	Wgh	
1	202144	–	–	–	182.1	Panned Concentrate
2	202145	–	–	–	149.1	Voyager 3
3	202146	–	–	–	159.1	
4	202147	–	–	–	105.8	Panned Concentrate
5	202148	–	–	–	169.0	Voyager 2
6	202149	–	–	–	146.5	
7	202150	–	–	–	127.0	Panned Concentrate Kid Creek.
8	202194	–	–	–	81.9	Panned Concentrate
9	202195	–	–	–	56.2	Barrel Creek.
10	202196	–	–	–	127.4	
11	202197	–	–	–	110.2	
12	202533	–	–	–	96.7	
13	202535	–	–	–	83.5	
14	202537	–	–	–	66.0	
15	202539	–	–	–	78.3	
16	202543	–	–	–	152.2	Panned Concentrate
17	202544	–	–	–	132.5	Voyager 18.
18	202601	–	–	–	51.0	
19	202602	–	–	–	43.8	
20	202603	–	–	–	40.6	Panned Concentrates
21	202604	–	–	–	58.1	Porphyry Contact.
22	202605	–	–	–	56.5	
23	202606	–	–	–	49.7	
24	202607	–	–	–	30.9	
25	202608	–	–	–	38.4	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	17 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	Wgh	
1	202609	–	–	–	60.6	Panned Concentrate
2	202612	–	–	–	52.8	Porphyry Contact.
3	202613	–	–	–	40.1	
4	202683	–	–	–	50.5	
5	202684	–	–	–	43.6	
6	202685	–	–	–	48.8	
7	202686	–	–	–	50.7	
8	202687	–	–	–	42.1	
9	202688	–	–	–	17.8	5 Panned Concentrate
10	202689	–	221.80	–	59.2	
11	202690	–	–	–	31.8	Porphyry Contact.
12	202691	–	–	–	39.5	
13	202692	–	–	–	50.1	
14	202693	–	–	–	53.7	
15	202694	–	–	–	39.1	
16	202695	–	–	–	47.5	
17	202696	–	–	–	43.5	
18	202697	–	–	–	42.3	
19	202698	–	–	–	36.2	
20	202699	–	–	–	53.0	
21	202700	–	688.70	–	63.1	
22	171647	–	–	–	–	Panned Concentrate
23	171648	–	–	–	–	Hudson River.
24	171649	–	–	–	–	
25	202540	–	–	–	–	Panned Concentrate Wanderer River

Results in ppm unless otherwise specified
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04247	11/03/87	E 00254	18 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	Wgh	
1	202541	–	–	–	–	Panned Concentrates Wanderer River.
2	202542	–	–	–	–	
3	202259	0.02	–	–	–	Soil Samples
4	202260	0.02	–	–	–	Voyager 6.
5	202261	0.03	–	–	–	
6	202262	0.03	–	–	–	
7						
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15						
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17						
18						
19						
20						
21						
22						
23	DETECTION	0.01	0.008	0.005	0.1	
24	UNITS	PPM	PPM	PPM	GMS	
25	METHOD	329	309	313	199	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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7.5.08.04277

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E00256	ON 4832-33
26/02/87	ASAP

10	09/03/87	1	105

Various	SS	Prep: 006,017						Cu,Pb,Zn,Ag/101,As/114		
Various	SS							Au,AuChk/309		
202571,202619/23,202751/52-	PC	Prep: 006,017						Cu,Pb,Zn,Ag/101,As/114,Wgh/199		
202571,202619/23,202751/52	PC							Au,AuChk/309		
Various	RC	Prep: 006,010,012,014,017						Cu,Pb,Zn,Ag/101,As/114		

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REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
[illegible]	WC	perchloric acid	[illegible]	acid	CA	atomic absorbtion	AAS
[illegible]	SO	hydrochloric acid	[illegible]	[illegible]	SS	x-ray fluorescence	[illegible]
[illegible]	CU	nitric acid	[illegible]	[illegible]	Mo	spectrophotometry	SPEC
[illegible]	Ro	[illegible]	[illegible]	[illegible]	AA	colorimetry	COL
[illegible]	SO	[illegible]	[illegible]	[illegible]	[illegible]	chromatography	[illegible]
[illegible]	PU	[illegible]	[illegible]	[illegible]	IG	titration	[illegible]
[illegible]	WA	[illegible]	[illegible]	[illegible]	RF	[illegible]	[illegible]
[illegible]	TI	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	SS					fluorescence	[illegible]
[illegible]	HM					inductively coupled plasma	[illegible]

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	/.5.08.04277	09/03/87	E00256	1 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Wgh	Au	Au
1	202598	<5	5	20	<0.5	–	2	–	0.008	–
2	202599	<5	10	15	<0.5	–	<1	–	0.008	–
3	202600	<5	<5	5	<0.5	–	1	–	0.008	–
4	202633	<5	10	20	<0.5	–	1	–	9.310	–
5	202634	<5	<5	15	<0.5	–	1	–	0.008	–
6	202635	<5	<5	15	<0.5	–	<1	–	0.008	–
7	202636	<5	<5	5	<0.5	–	1	–	0.008	–
8	202799	45	10	75	<0.5	–	5	–	0.008	–
9	202800	95	5	120	<0.5	–	1	–	0.060	–
10	202571	<5	<5	5	<0.5	–	<1	57.4	0.110	–
11	202619	<5	<5	10	–	25	1	53.1	173.33	–
12	202620	<5	5	20	3.5	–	<1	51.0	5.270	–
13	202621	<5	<5	5	<0.5	–	<1	47.2	0.930	–
14	202622	<5	<5	5	0.5	–	<1	29.8	0.010	
15	202623	<5	<5	25	1.5	–	1	36.2	4.960	
16	202751	80	<5	45	<0.5	–	2	42.9	2.610	
17	202752	55	<5	75	<0.5	–	9	37.3	0.030	–
18	171447	45	195	55	2.0	–	160	–	–	0.050
19	171448	15	455	500	<0.5	–	12	–	–	<0.5
20	171449	80	115	100	3.5	–	55	–	–	0.030
21	171977	10	5	25	0.5	–	5	–	–	<0.005
22	171978	5	<5	15	<0.5	–	<1	–	–	<0.005
23	171979	10	360	720	<0.5	–	1	–	–	<0.005
24	171988	90	10	70	0.5	–	29	–	–	<0.005
25	171989	35	<5	120	<0.5	–	64	–	–	<0.005

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04277	09/03/87	E6025a	2 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Wgh	Au	Au
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	30	-	-	<0.005
2	[illegible]	[illegible]	[illegible]	[illegible]	<0.5	-	2	-	-	0.005
3	[illegible]	[illegible]	[illegible]	160	<0.5	-	1	-	-	-
4	[illegible]	[illegible]	<40	300	<0.5	-	1	-	-	-
5	[illegible]	5	30	65	<0.5	-	<1	-	-	-
6	[illegible]	10	90	125	<0.5	-	1	-	-	-
7	[illegible]	5	<5	10	<0.5	-	<1	-	-	-
8	[illegible]	<5	10	25	<0.5	-	<1	-	-	-
9	[illegible]	<5	10	60	<0.5	-	<1	-	-	-
10	[illegible]	10	25	120	<0.5	-	1	-	-	-
11	[illegible]	5	25	210	<0.5	-	2	-	-	-
12	[illegible]	<5	75	125	<0.5	-	1	-	-	
13	[illegible]	<5	75	155	<0.5	-	1	-	-	
14	[illegible]	<5	20	35	<0.5	-	1	-	-	-
15	[illegible]	<5	<5	20	<0.5	-	<1	-	-	-
16	[illegible]	<5	<5	70	<0.5	-	<1	-	-	-
17	[illegible]	5	<5	40	<0.5	-	2	-	-	-
18	[illegible]	<5	<5	10	<0.5	-	<1	-	-	
19	[illegible]	30	640	180	<0.5	-	4	-	-	
20	[illegible]	[illegible]	<5	10	<0.5	-	<1	-	-	-
21	[illegible]	<5	10	20	<0.5	-	1	-	-	-
22	[illegible]	<5	5	15	<0.5	-	1	-	-	-
23	[illegible]	[illegible]	10	45	<0.5	-	<1	-	-	-
24	[illegible]	[illegible]	45	[illegible]	<0.5	-	1	-	-	-
25	202285	10	10	30	<0.5	-	1	-	-	-

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04277	09/03/87	E00256	3 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Wgh	Au	Au
1	202286	<5	5	120	<0.5	-	1	-	-	-
2	202287	<5	10	145	<0.5	-	3	-	-	-
3	202288	<5	10	115	<0.5	-	4	-	-	-
4	202289	5	<5	75	<0.5	-	1	-	-	-
5	202290	<5	15	380	<0.5	-	1	-	-	-
6	202291	<5	<5	95	<0.5	-	1	-	-	-
7	202292	<5	15	25	<0.5	-	1	-	-	-
8	202293	5	30	30	1.0	-	1	-	-	-
9	202294	5	30	70	0.5	-	<1	-	-	-
10	202295	<5	45	65	<0.5	-	1	-	-	-
11	202296	5	10	20	<0.5	-	1	-	-	-
12	202297	<5	<5	40	<0.5	-	<1	-	-	-
13	202298	<5	20	30	<0.5	-	<1	-	-	-
14	202299	5	90	35	<0.5	-	1	-	-	-
15	202300	<5	<5	5	<0.5	-	<1	-	-	-
16	202545	<5	<5	5	<0.5	-	<1	-	-	-
17	202546	35	25	75	<0.5	-	1	-	-	-
18	202547	30	10	10	<0.5	-	1	-	-	-
19	202548	<5	<5	5	<0.5	-	1	-	-	-
20	202549	<5	<5	5	<0.5	-	<1	-	-	-
21	202550	<5	<5	30	<0.5	-	1	-	-	-
22	202801	5	<5	55	<0.5	-	1	-	-	-
23	202802	<5	<5	75	<0.5	-	1	-	-	-
24	202803	10	5	10	<0.5	-	4	-	-	-
25	202804	5	<5	10	<0.5	-	<1	-	-	-

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04277	09/03/87	E00256	4 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Wgh	Au	Au
1	202805	<5	<5	10	<0.5	–	<1	–	–	–
2	202806	5	<5	15	<0.5	–	1	–	–	–
3	202807	10	10	55	<0.5	–	5	–	–	–
4	202808	10	15	55	<0.5	–	4	–	–	–
5	202809	15	<5	20	<0.5	–	1	–	–	–
6	202810	55	<5	50	<0.5	–	3	–	–	–
7	202811	35	<5	25	<0.5	–	1	–	–	–
8	202812	120	20	85	<0.5	–	21	–	–	–
9	202813	55	20	60	<0.5	–	14	–	–	–
10	202814	20	40	150	<0.5	–	11	–	–	–
11	202815	140	15	75	<0.5	–	16	–	–	–
12	202816	40	<5	15	<0.5	–	7	–	–	–
13	202817	15	40	70	<0.5	–	16	–	–	–
14	202818	190	20	65	<0.5	–	42	–	–	–
15	202819	15	<5	20	<0.5	–	2	–	–	–
16	202820	15	<5	15	<0.5	–	1	–	–	–
17	202821	20	<5	45	<0.5	–	<1	–	–	–
18	202822	60	<5	75	<0.5	–	<1	–	–	–
19	202823	170	<5	95	<0.5	–	1	–	–	–
20	202824	200	<5	130	<0.5	–	1	–	–	–
21	202825	40	<5	60	<0.5	–	1	–	–	–
22	202826	40	<5	60	<0.5	–	1	–	–	–
23	202827	15	<5	65	<0.5	–	1	–	–	–
24	202828	20	<5	45	<0.5	–	1	–	–	–
25	202829	20	<5	45	<0.5	–	1	–	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04277	09/03/87	E00256	5 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	Wgh	Au	Au
1	202830	15	<5	50	<0.5	–	<1	–	–	–
2	202831	90	<5	90	<0.5	–	1	–	–	–
3	202832	60	<5	65	<0.5	–	2	–	–	–
4	202833	20	<5	15	<0.5	–	1	–	–	–
5	202834	20	<5	30	<0.5	–	8	–	–	–
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	2	1	0.1	0.008	0.005
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	GMS	PPM	PPM
25	METHOD	101	101	101	101	104	114	199	309	313

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04277	09/03/87	E00256	6 OF 10

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	
1	202598	–	–	–	–	– 80# Stream Sediment
2	202599	–	–	–	–	
3	202600	–	–	–	–	
4	202633	–	–	–	–	– 80# Stream Sediment
5	202634	–	–	–	–	
6	202635	–	–	–	–	
7	202636	–	–	–	–	
8	202799	–	–	–	–	– 80# Stream Sediment
9	202800	–	–	–	–	
10	202571	–	–	–	–	Panned Concentrate EM Anomaly 8
11	202619	–	177.96	–	–	Panned Concentrate Voyager 3B
12	202620	–	–	–	–	
13	202621	–	–	–	–	Rock Chip
14	202622	–	–	–	–	
15	202623	–	–	–	–	
16	202751	–	–	–	–	
17	202752	–	–	–	–	
18	171447	–	–	–	–	Rock Chip
19	171448	–	–	–	–	
20	171449	–	–	–	–	
21	171977	–	–	–	–	Rock Chip
22	171978	–	–	0.005	–	E.M. Anomaly 9.
23	171979	–	–	–	–	
24	171988	–	–	–	–	Rock Chip
25	171989	–	–	–	–	

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04277	09/03/87	E00256	7 OF 10

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk					
1	171990	–	–	–	–	Rock Chip				
2	171991	–	–	–	–					
3	202263	<0.01	–	–	–					
4	202264	<0.01	–	–	–					
5	202265	<0.01	–	–	–					
○	202266	<0.01	–	–	–					
7	202267	<0.01	–	–	–	Line 9				
8	202268	<0.01	–	–	–	Soil Samples.				
9	202269	<0.01	–	–	–					
10	202270	<0.01	–	–	–					
11	202271	<0.01	–	–	–					
12	202272	<0.01	–	–	<0.01					
13	202273	<0.01	–	–	–					
14	202274	<0.01	–	–	–					
15	202275	<0.01	–	–	–					
○ 16	202276	<0.01	–	–	–					
17	202277	<0.01	–	–	–					
18	202278	<0.01	–	–	–					
19	202279	<0.01	–	–	–					
20	202280	<0.01	–	–	–	Line 8				
21	202281	<0.01	–	–	–	Soil Samples.				
22	202282	<0.01	–	–	<0.01					
23	202283	<0.01	–	–	–					
24	202284	<0.01	–	–	–					
25	202285	<0.01	–	–	–					

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04277	09/03/87	E00256	8 OF 10

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk
1	202286	<0.01	–	–	–
2	202287	<0.01	–	–	–
3	202288	<0.01	–	–	–
4	202289	<0.01	–	–	–
5	202290	<0.01	–	–	–
○	202291	<0.01	–	–	–
7	202292	<0.01	–	–	<0.01
8	202293	<0.01	–	–	–
9	202294	<0.01	–	–	–
10	202295	<0.01	–	–	–
11	202296	<0.01	–	–	–
12	202297	<0.01	–	–	–
13	202298	<0.01	–	–	–
14	202299	<0.01	–	–	–
15	202300	<0.01	–	–	–
○	202545	<0.01	–	–	–
17	202546	<0.01	–	–	<0.01
18	202547	<0.01	–	–	–
19	202548	<0.01	–	–	–
20	202549	<0.01	–	–	–
21	202550	<0.01	–	–	–
22	202801	<0.01	–	–	–
23	202802	<0.01	–	–	–
24	202803	<0.01	–	–	–
25	202804	<0.01	–	–	–

Line 8
Soil Samples

Line 23
Soil Samples

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04277	09/03/87	E00256	9 OF 10

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk
1	202805	<0.01	–	–	–
2	202806	<0.01	–	–	–
3	202807	<0.01	–	–	–
4	202808	<0.01	–	–	–
5	202809	<0.01	–	–	–
6	202810	<0.01	–	–	–
7	202811	<0.01	–	–	–
8	202812	<0.01	–	–	–
9	202813	<0.01	–	–	–
10	202814	<0.01	–	–	–
11	202815	<0.01	–	–	–
12	202816	<0.01	–	–	<0.01
13	202817	<0.01	–	–	–
14	202818	<0.01	–	–	–
15	202819	0.06	–	–	–
16	202820	<0.01	–	–	–
17	202821	<0.01	–	–	–
18	202822	<0.01	–	–	–
19	202823	<0.01	–	–	–
20	202824	<0.01	–	–	–
21	202825	<0.01	–	–	–
22	202826	<0.01	–	–	<0.01
23	202827	<0.01	–	–	–
24	202828	<0.01	–	–	–
25	202829	<0.01	–	–	–

Line 23

Soil Samples.

Results in ppm unless otherwise specified
I = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04277	09/03/87	E00256	10 OF 10

Line 23
Soil Samples

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk
1	202830	<0.01	–	–	–
2	202831	<0.01	–	–	–
3	202832	<0.01	–	–	–
4	202833	<0.01	–	–	–
5	202834	<0.01	–	–	–
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23	DETECTION	0.01	0.008	0.005	0.01
24	UNITS	PPM	PPM	PPM	PPM
25	METHOD	329	309	313	329

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL REPORT No. 7.5.08.04294

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
E00257	DN 4834

DATE RECEIVED	RESULTS REQUIRED
06/03/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
7	20/03/87	1	157

STATE OF SAMPLE	PRE-TREATMENT								ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	RO	Prep: 005,009,012,013,017						Cu,Pb,Zn,Ag/101,As/114		
	Various	RO							Au,AuRpt/313		
	Various	SO	Prep: 005,009,017						Cu,Pb,Zn,Ag/101,As/114		
	Various	SO							Au,AuChk/329		
	202624/27	PC	Prep: 005,001,017						Cu,Pb,Zn,Ag/101,As/114,Wgh/199		

RESULTS TO

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO

C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TIT
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.88.04294	20/03/87	E00257	1 OF 7

TUBE No.	SAMPLE No.	Au	Au	Au	AuRpt	AuRpt	
1	171597	-	<0.005	-	<0.005	-	Rock Chips Voyager 24
2	171598	-	<0.005	-	-	-	
3	171599	-	<0.005	-	-	-	
4	171650	-	<0.005	-	-	-	
5	171992	-	<0.005	-	-	-	
6	171993	-	<0.005	-	-	-	
7	202756	-	<0.005	-	-	-	Rock Chips EM Anom 12/13
8	202757	-	<0.005	-	-	-	
9	202902	-	<0.005	-	-	-	Rock Chips Voyager 24
10	202903	-	<0.005	-	-	-	
11	202759	-	-	<0.01	-	-	Soils Mt Osmund East Line 17
12	202760	-	-	<0.01	-	-	
13	202761	-	-	<0.01	-	-	
14	202762	-	-	<0.01	-	-	
15	202763	-	-	<0.01	-	-	
16	202764	-	-	<0.01	-	-	
17	202765	-	-	<0.01	-	-	
18	202766	-	-	<0.01	-	-	
19	202767	-	-	<0.01	-	-	
20	202768	-	-	<0.01	-	-	
21	202769	-	-	<0.01	-	-	
22	202770			<0.01	-	-	
23	202771		-	<0.01	-	-	
24	202772			<0.01	-	-	
25	202773	-		<0.01	-	-	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	2 OF 7

TUBE No.	SAMPLE No.	Au	Au	Au	AuRpt	AuRpt
1	202774	-	-	<0.01	-	-
2	202775	-	-	<0.01	-	-
3	202776	-	-	<0.01	-	-
4	202777	-	-	<0.01	-	-
5	202778	-	-	<0.01	-	-
6	202779	-	-	<0.01	-	-
7	202780	-	-	<0.01	-	-
8	202781	-	-	<0.01	-	-
9	202782	-	-	<0.01	-	-
10	202783	-	-	<0.01	-	-
11	202784	-	-	<0.01	-	-
12	202785	-	-	<0.01	-	-
13	202786	-	-	<0.01	-	-
14	202787	-	-	<0.01	-	-
15	202788	-	-	<0.01	-	-
16	202789	-	-	<0.01	-	-
17	202790	-	-	<0.01	-	-
18	202791	-	-	<0.01	-	-
19	202792	-	-	<0.01	-	-
20	202793			<0.01	-	-
21	202794	-	-	<0.01	-	-
22	202795	-	-	<0.01	-	-
23	202796	-	-	<0.01	-	-
24	2[illegible]	-	-	<0.01	-	-
25	[illegible]3	-	-	<0.01	-	-

Soils
- Mt Osmund East
Line 17

Soils
- Nth Porphyry
Contact
Line 7

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	3 OF 7

TUBE No.	SAMPLE No.	Au	Au	Au	AuRpt	AuRpt	
1	202835	–	–	<0.01	–	–	
2	202836	–	–	<0.01	–	–	
3	202837	–	–	<0.01	–	–	
4	202838	–	–	<0.01	–	–	
5	202839	–	–	<0.01	–	–	
6	202840	–	–	<0.01	–	–	
7	202841	–	–	<0.01	–	–	Soils
8	202842	–	–	<0.01	–	–	– Osmund East
9	202843	–	–	<0.01	–	–	Line 16
10	202844	–	–	<0.01	–	–	
11	202845	–	–	<0.01	–	–	
12	202846	–	–	<0.01	–	–	
13	202847	–	–	<0.01	–	–	
14	202848	–	–	<0.01	–	–	
15	202849	–	–	<0.01	–	–	
16	202850	–	–	<0.01	–	–	Soil - Line 17 Mt Osmund East
17	202851	–	–	<0.01	–	–	
18	202852	–	–	<0.01	–	–	
19	202853	–	–	<0.01	–	–	
20	202854	–	–	<0.01	–	–	Soils
21	202855	–	–	<0.01	–	–	– Nth Porphry Contact
22	202856	–	–	<0.01	–	–	Line 7
23	202857	–	–	<0.01	–	–	Soils
24	202858	–	–	<0.01	–	–	– Nth. Porphry Contact
25	202859	–	–	<0.01	–	–	Line 7.6

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	4 OF 7

TUBE No.	SAMPLE No.	Au	Au	Au	AuRpt	AuRpt
1	202860	–	–	<0.01	–	–
2	202861	–	–	<0.01	–	–
3	202862	–	–	<0.01	–	–
4	202863	–	–	<0.01	–	–
5	202864	–	–	<0.01	–	–
6	202865	–	–	<0.01	–	–
7	202866	–	–	<0.01	–	–
8	202867	–	–	<0.01	–	–
9	202868	–	–	<0.01	–	–
10	202869	–	–	<0.01	–	–
11	202870	–	–	<0.01	–	–
12	202871	–	–	<0.01	–	–
13	202872	–	–	<0.01	–	–
14	202873	–	–	<0.01	–	–
15	202874	–	–	<0.01	–	–
16	202875	–	–	<0.01	–	–
17	202876	–	–	<0.01	–	–
18	202877	–	–	<0.01	–	–
19	202878	–	–	<0.01	–	–
20	202879	–	–	<0.01	–	–
21	202880	–	–	<0.01	–	–
22	202881	–	–	<0.01	–	–
23	202882	–	–	<0.01	–	–
24	202883	–	–	<0.01	–	–
25	202884	–	–	<0.01	–	–

Soils
– Nth Porphyry Contact
Line 7.6

Soils
– Nth Porphyry Contact
Line 7.5

Soils
– Dolerite – Porphyry Contact

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	5 OF 7

TUBE No.	SAMPLE No.	Au	Au	Au	AuRpt	AuRpt
1	202885	–	–	<0.01	–	–
2	202886	–	–	<0.01	–	–
3	202887	–	–	<0.01	–	–
4	202888	–	–	<0.01	–	–
5	202889	–	–	<0.01	–	–
6	202890	–	–	<0.01	–	–
7	202891	–	–	<0.01	–	–
8	202892	–	–	<0.01	–	–
9	202951	–	–	<0.01	–	–
10	202952	–	–	<0.01	–	–
11	202953	–	–	<0.01	–	–
12	202954	–	–	<0.01	–	–
13	202955	–	–	<0.01	–	–
14	202956	–	–	<0.01	–	–
15	202957	–	–	<0.01	–	–
16	202958	–	–	<0.01	–	–
17	202959	–	–	<0.01	–	–
18	202960	–	–	<0.01	–	–
19	202961	–	–	<0.01	–	–
20	202962	–	–	<0.01	–	–
21	202963	–	–	<0.01	–	–
22	202964	–	–	<0.01	–	–
23	202965	–	–	<0.01	–	–
24	202966	–	–	<0.01	–	–
25	202967	–	–	<0.01	–	–

Soils
– Valerite – Porphyry Contact

Soils
– Mt Osmund West
Line 14600N

Soils
– Mt Osmund West
Line 14200N

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	6 OF 7

TUBE No.	SAMPLE No.	Au	Au	Au	AuRpt	AuRpt
1	202968	–	–	<0.01	–	–
2	202969	–	–	<0.01	–	–
3	202970	–	–	<0.01	–	–
4	202971	–	–	<0.01	–	–
5	202972	–	–	<0.01	–	–
6	202973	–	–	<0.01	–	–
7	202974	–	–	<0.01	–	–
8	202975	–	–	<0.01	–	–
9	202976	–	–	<0.01	–	–
10	202977.	–	–	<0.01	–	–
11	202978	–	–	<0.01	–	–
12	202979	–	–	<0.01	–	–
13	202980	–	–	<0.01	–	–
14	202981	–	–	<0.01	–	–
15	202982	–	–	<0.01	–	–
16	202983	–	–	<0.01	–	–
17	202984	–	–	<0.01	–	–
18	202985	–	–	<0.01	–	–
19	202986	–	–	<0.01	–	–
20	202987	–	–	<0.01	–	–
21	202988	–	–	<0.01	–	–
22	202989	–	–	<0.01	–	–
23	202990	–	–	<0.01	–	–
24	202991	–	–	<0.01	–	–
25	202624	<0.008	–	–	–	–

SOILS
MT OSMUND WEST
LINE 14200N

SOILS
MT OSMUND WEST
LINE 25

PANNED CONC
EM ANOM 12/13

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	7 OF 7

TUBE No.	SAMPLE No.	Au	Au	Au	AuRpt	AuRpt	
1	202625	2.490	-	-	-	-	Panned Concentrate
2	202626	2.930	-	-	-	-	EM Anom. 12/13
3	202627	<0.008	-	-	-	-	
4	202629	<0.008	-	-	-	-	
5	202630	<0.008	-	-	-	<0.008	-80#
6	202631	<0.008	-	-	-	-	EM Anom 12/13
7	202632	<0.008	-	-	-	-	
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23	DETECTION	0.008	0.005	0.01	0.005	0.008	
24	UNITS	PPM	PPM	PPM	PPM	PPM	
25	METHOD	309	313	329	313	309	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
.	7.5.08.04294	20/03/87	E00257	1 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As
1	171597	25	<5	5	<0.5	-	<1
2	171598	75	15	10	<0.5	-	<1
3	171599	35	<5	5	<0.5	-	<1
4	171650	50	5	10	<0.5	-	<1
5	171992	20	145	120	<0.5	-	<1
6	171993	65	10	10	<0.5	-	<1
7	202756	45	30	115	<0.5	-	<1
8	202757	50	435	670	<0.5	-	11
9	202902	15	<5	20	<0.5	-	<1
10	202903	45	<5	<5	<0.5	-	<1
11	202759	<5	30	70	<0.5	-	<1
12	202760	5	<5	60	<0.5	-	<1
13	202761	5	210	460	<0.5	-	
14	202762	<5	<5	75	<0.5	-	<1
15	202763	10	495	110	<0.5	-	3
16	202764	5	35	50	<0.5	-	1
17	202765	20	125	105	<0.5	-	1
18	202766	5	530	1700	<0.5	-	1
19	202767	15	605	360	<0.5	-	1
20	202768	10	10	70	<0.5	-	<1
21	202769	<5	35	80	<0.5	-	<1
22	202770	<5	<5	45	<0.5	-	<1
23	202771	10	40	30	<0.5	-	<1
24	202772	<5	325	110	<0.5	-	<1
25	202773	5	315	230	<0.5	-	<1

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	2 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As			
1	202774	<5	95	175	<0.5	-	<1			
2	202775	5	60	150	<0.5	-	<1			
3	202776	<5	195	135	<0.5	-	1			
4	202777	15	165	225	<0.5	-	<1			
5	202778	20	145	185	<0.5	-	1			
6	202779	15	195	95	<0.5	-	<1			
7	202780	5	<5	<5	<0.5	-	2			
8	202781	<5	<5	<5	<0.5	-	<1			
9	202782	10	<5	<5	<0.5	-	2			
10	202783	<5	<5	<5	<0.5	-	<1			
11	202784	<5	<5	<5	<0.5	-	<1			
12	202785	5	<5	<5	<0.5	-	<1			
13	202786	<5	<5	<5	<0.5	-	<1			
14	202787	<5	<5	<5	<0.5	-	<1			
15	202788	<5	<5	<5	<0.5	-	<1			
16	202789	<5	<5	20	<0.5	-	<1			
17	202790	<5	<5	15	<0.5	-	<1			
18	202791	15	50	15	<0.5	-	<1			
19	202792	15	30	560	<0.5	-	1			
20	202793	<5	40	70	3.0	-	<1			
21	202794	15	110	55	<0.5	-	<1			
22	202795	10	220	565	<0.5	-	3			
23	202796	10	25	65	<0.5	-	2			
24	202797	<5	<5	95	<0.5	-	1			
25	202798	<5	<5	105	<0.5	-	<1			

Results in ppm unless otherwise specified
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	3 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As			
1	202835	<5	<5	10	<0.5	–	<1			
2	202836	10	10	190	<0.5	–	<1			
3	202837	<5	<5	45	<0.5	–	<1			
4	202838	<5	<5	70	<0.5	–	<1			
5	202839	10	15	90	<0.5	–	<1			
6	202840	10	40	80	<0.5	–	<1			
7	202841	15	105	1300	<0.5	–	1			
8	202842	10	55	130	<0.5	–	<1			
9	202843	<5	<5	40	<0.5	–	<1			
10	202844	5	<5	60	<0.5	–	<1			
11	202845	15	25	155	<0.5	–	1			
12	202846	5	535	640	<0.5	–	1			
13	202847	10	65	500	<0.5	–	<1			
14	202848	5	<5	15	<0.5	–	<1			
15	202849	5	<5	140	<0.5	–	<1			
16	202850	10	105	140	<0.5	–	<1			
17	202851	<5	<5	30	<0.5	–	<1			
18	202852	5	<5	80	<0.5	–	<1			
19	202853	5	<5	105	<0.5	–	<1			
20	202854	5	<5	70	<0.5	–	<1			
21	202855	<5	<5	45	<0.5	–	1			
22	202856	<5	<5	15	<0.5	–	<1			
23	202857	<5	<5	15	<0.5	–	<1			
24	202858	10	<5	15	<0.5	–	<1			
25	202859	<5	<5	15	<0.5	–	<1			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	4 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As			
1	202860	<5	<5	45	<0.5	–	<1			
2	202861	5	<5	25	<0.5	–	<1			
3	202862	10	15	140	<0.5	–	<1			
4	202863	5	<5	45	<0.5	–	17			
5	202864	20	170	125	3.0	–	2			
6	202865	5	35	100	<0.5	–	1			
7	202866	5	30	245	<0.5	–	1			
8	202867	10	150	430	<0.5	–	3			
9	202868	10	75	990	–	13	<1			
10	202869	5	<5	45	<0.5	–	1			
11	202870	<5	<5	20	<0.5	–	1			
12	202871	10	20	70	<0.5	–	2			
13	202872	5	190	245	<0.5	–	1			
14	202873	5	30	35	<0.5	–	<1			
15	202874	5	<5	35	<0.5	–	<1			
16	202875	<5	25	165	<0.5	–	1			
17	202876	<5	25	110	<0.5	–	<1			
18	202877	10	20	45	<0.5	–	1			
19	202878	10	45	65	<0.5	–	1			
20	202879	5	15	30	<0.5	–	<1			
21	202880	5	15	60	<0.5	–	<1			
22	202881	<5	<5	15	<0.5	–	1			
23	202882	<5	10	60	<0.5	–	<1			
24	202883	10	45	100	<0.5	–	<1			
25	202884	10	30	105	<0.5	–	<1			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	5 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As			
1	202885	<5	<5	10	<0.5	-	<1			
2	202886	5	10	10	<0.5	-	<1			
3	202887	10	10	10	<0.5	-	<1			
4	202888	10	<5	15	<0.5	-	<1			
5	202889	25	50	335	<0.5	-	<1			
6	202890	90	10	50	<0.5	-	1			
7	202891	55	<5	65	<0.5	-	1			
8	202892	50	<5	65	<0.5	-	<1			
9	202951	5	10	10	<0.5	-	1			
10	202952	<5	15	15	<0.5	-	<1			
11	202953	5	<5	10	<0.5	-	<1			
12	202954	5	<5	15	<0.5	-	<1			
13	202955	<5	<5	10	<0.5	-	<1			
14	202956	5	<5	15	<0.5	-	<1			
15	202957	5	<5	15	<0.5	-	1			
16	202958	5	<5	20	<0.5	-	1			
17	202959	5	<5	10	<0.5	-	<1			
18	202960	5	<5	10	<0.5	-	1			
19	202961	5	<5	10	<0.5	-	<1			
20	202962	5	<5	10	<0.5	-	<1			
21	202963	<5	30	15	<0.5	-	<1			
22	202964	<5	<5	15	<0.5	-	<1			
23	202965	<5	<5	15	<0.5	-	<1			
24	202966	<5	<5	20	<0.5	-	16			
25	202967	<5	10	15	<0.5	-	370			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	6 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As			
1	202968	<5	<5	10	<0.5	-	6			
2	202969	<5	<5	10	<0.5	-	2			
3	202970	5	<5	60	<0.5	-	1			
4	202971	<5	<5	20	<0.5	-	<1			
5	202972	<5	<5	10	<0.5	-	<1			
6	202973	<5	<5	10	<0.5	-	<1			
7	202974	<5	<5	10	<0.5	-	<1			
8	202975	5	20	20	<0.5	-	<1			
9	202976	65	940	40	<0.5	-	2			
10	202977	5	30	25	<0.5	-	3			
11	202978	<5	10	35	<0.5	-	1			
12	202979	25	40	25	<0.5	-	9			
13	202980	5	10	20	<0.5	-	1			
14	202981	15	270	50	<0.5	-	4			
15	202982	5	15	5	<0.5	-	1			
16	202983	5	15	15	<0.5	-	1			
17	202984	10	10	10	<0.5	-	<1			
18	202985	<5	20	10	<0.5	-	1			
19	202986	<5	<5	<5	<0.5	-	<1			
20	202987	5	10	65	<0.5	-	1			
21	202988	10	40	65	<0.5	-	1			
22	202989	5	15	25	<0.5	-	1			
23	202990	<5	<5	5	<0.5	-	1			
24	202991	<5	5	20	<0.5	-	1			
25	202624	<5	15	75	<0.5	-	2			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04294	20/03/87	E00257	7 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As			
1	202625	<5	80	25	<0.5	–	4			
2	202626	<5	15	125	<0.5	–	2			
3	202627	<5	10	25	<0.5	–	<1			
4	202629	<5	<5	10	<0.5	–	<1			
5	202630	<5	<5	15	<0.5	–	<1			
6	202631	<5	30	25	<0.5	–	<1			
7	202632	<5	10	25	<0.5	–	<1			
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	2	1			
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM			
25	METHOD	101	101	101	101	104	114			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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Telephone (09) 458 7999 — 6/4 Murray Road, Welshpool, W.A. 6106 — Telex AA92560

ANALYTICAL REPORT No. 7.5.08.04311

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
E00258	DN 4835

DATE RECEIVED	RESULTS REQUIRED
12/03/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES
0		0

TOTAL No. OF SAMPLES: 88

SAMPLE NUMBERS	PRE-TREATMENT							ANALYSIS		
	DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
202713/741	RC	Prep: 003,009,012,013,017						Cu,Pb,Zn,Ag/101,As/114		
202713/741	RC							Au,AuChk/313		
202893/900,202904/917	SO	Prep: 003,013,017						Cu,Pb,Zn,Ag/101,As/114		
202893/900,202904/917	SO							Au,AuChk/329		
202572/583,202918/923	PC	Prep: 003,001,013,017						Cu,Pb,Zn,Ag/101,As/114,Hgh/199		

RESULTS TO:
B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO
C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorption	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
drilling	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
mineral	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04311	25/03/87	E00258	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As			
1	202713	85	5	15	<0.5	–	43	SOUTH LEWIS ROCK CHIP.		RIVER.
2	202714	10	<5	<5	<0.5	–	2			
3	202715	5	<5	10	<0.5	–	1			
4	202716	10	<5	10	<0.5	–	1			
5	202717	540	<5	10	<0.5	–	1			
6	202718	15	<5	10	<0.5	–	1			
7	202719	25	<5	5	<0.5	–	<1			
8	202720	15	<5	10	<0.5	–	1			
9	202721	10	<5	15	<0.5	–	1			
10	202722	5	<5	35	<0.5	–	1	Rock chips Penders Alteration Zone.		
11	202723	10	5	35	<0.5	T	<1			
12	202724	10	<5	15	<0.5	–	<1			
13	202725	25	<5	40	<0.5	–	<1			
14	202726	40	<5	40	<0.5	–	2			
15	202727	10	<5	20	<0.5	–	1			
16	202728	5	<5	5	<0.5	–	3			
17	202729	350	245	3100	7.0	–	71			
18	202730	35	<5	65	<0.5	–	6			
19	202731	15	20	50	<0.5	–	4			
20	202732	30	25	50	<0.5	–	7			
21	202733	20	<5	55	<0.5	–	1			
22	202734	550	<5	110	<0.5	–	7			
23	202735	80	70	185	<0.5	–	8			
24	202736	150	<5	55	<0.5	–	1			
25	202737	1400	15	90	<0.5	–	16			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04311	25/03/87	E00258	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As			
1	202738	135	<5	10	<0.5	-	1	PENDERS ROCK CHIP.		
2	202739	770	<5	40	<0.5	-	58			
3	202740	240	<5	40	<0.5	-	7			
4	202741	8400	75	90	3.0	-	16			
5	202893	20	30	65	<0.5	-	2			
6	202894	10	20	75	<0.5	-	2			
7	202895	3	60	245	<0.5	-	2			
8	202896	10	40	40	<0.5	-	1			
9	202897	35	135	65	0.5	-	1			
10	202898	10	<5	15	<0.5	-	1	WANDERER SOUTH Line 7. SOIL SAMPLES.		
11	202899	10	35	5	<0.5	-	1			
12	202900	10	15	15	<0.5	-	1			
13	202904	10	75	30	<0.5	-	1			
14	202905	5	25	65	<0.5	-	1			
15	202906	3			0.5	-	4			
16	202907	1			0.5	-	2			
17	8	1				-	1			
18	9	1					1			
19	10	10								
20	11	10					1			
21	12	5					1			
22		5								
23		5								
24		5					1			
25		5			5	5	1			

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04311	25/03/87	E00258	3 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	
1	202917	5	<5	<5	<0.5	–	<1	WANDERER SOUTH SOIL SAMPLE. Line 7.
2	202572	10	<5	140	3.0	–	<1	SOUTH LEWIS RIVER PANNED CONCENTRATES.
3	202573	10	<5	55	<0.5	–	<1	
4	202574	5	<5	5	<0.5	–	<1	PENDERS PANNED CONCENTRATES.
5	202575	5	<5	15	<0.5	–	<1	
6	202576	5	<5	25	–	46	<1	
7	202577	10	<5	20	<0.5	–	<1	LOWER ROCKY POINT PANNED CONCENTRATES.
8	202578	5	<5	<5	<0.5	–	<1	
9	202579	5	<5	<5	<0.5	–	<1	
10	202580	5	<5	5	5.0		<1	
11	202581	5	<5	<5	<0.5		<1	
12	202582		<5	25	<0.5	–	<1	SOUTH LOUIS RIVER MOUTH. PANNED CONCENTRATES.
13	202583		<5	20	<0.5	–	<1	
14	202718			15	<0.5	–	<1	NORTH LEWIS RIVER PANNED CONCENTRATES.
15	202719	10		100	<0.5	–	<1	
16	202720			45	<0.5	–	<1	
17	202721	10			<0.5	–	<1	
18	202				.5			
19		15			5			
20		20						— 80# STREAM SEDIMENTS LOWER ROCKY POINT SASSY CK COASTLINE
21							1	
22								
23		5		5			1	
24		10				–		
25		10		<5			<1	

Results in ppm unless otherwise specified
1 = element present, but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04311	25/03/87	E00258	4 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	As	
1	202591	5	<5	<5	<0.5	-	<1	-80# Stream Sediments Lower Rocky Point Sassy Ck Coastline
2	202592	10	<5	<5	<0.5	-	<1	
3	202593	10	<5	<5	<0.5	-	<1	Pender Prospect -80# Stream Sediment.
4	202594	5	<5	<5	<0.5	-	<1	
5	202595	10	<5	<5	<0.5	-	<1	
6	202596	5	<5	<5	<0.5	-	<1	South Lewis River -80# Stream Sediment.
7	202597	10	<5	<5	<0.5	-	<1	
8	202945	10	<5	30	<0.5	-	1	NORTH LEWIS RIVER -80# STREAM SEDIMENT.
9	202946	5	<5	25	<0.5	-	<1	
10	202947	5	<5	5	<0.5	-	<1	
11	202948	10	<5	15	<0.5	-	<1	
12	202949	5	<5	10	<0.5	-	<1	
13	202950	10	<5	5	<0.5	-	<1	
14								
15								
16								
17								
18								
19								
20								
21								
22								
23	DETECTION	5	5	5	0.5	2	1	
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	
25	STD	102	101	101	101	104	114	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
_ = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04311	25/03/87	E00258	1 OF 4

TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk	Wgh		
1	202713	–	<0.005	–	–	–	–	–		
2	202714	–	0.005	–	–	–	–	–		
3	202715	–	<0.005	–	–	–	–	–		
4	202716	–	<0.005	–	–	–	–	–		
5	202717	–	<0.005	–	–	–	–	–		
6	202718	–	<0.005	–	–	–	–	–		
7	202719	–	<0.005	–	–	–	–	–		
8	202720	–	<0.005	–	–	–	–	–		
9	202721	–	<0.005	–	–	–	–	–		
10	202722	–	<0.005	–	–	–	–	–		
11	202723	–	<0.005	–	–	–	–	–		
12	202724	–	<0.005	–	–	–	–	–		
13	202725	–	<0.005	–	–	–	–	–		
14	202726	–	<0.005	–	–	–	–	–		
15	202727	–	<0.005	–	–	–	–	–		
16	202728	–	<0.005	–	–	–	–	–		
17	202729	–	0.030	–	–	0.030	–	–		
18	202730	–	<0.005	–	–	–	–	–		
19	202731	–	<0.005	–	–	–	–	–		
20	202732	–	<0.005	–	–	<0.005	–	–		
21	202733	–	<0.005	–	–	–	–	–		
22	202734	–	<0.005	–	–	–	–	–		
23	202735	–	0.005	–	–	<0.005	–	–		
24	202736	–	<0.005	–	–	–	–	–		
25	202737	–	0.010	–	–	–	–	–		

Results in ppm unless otherwise specified
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X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04311	25/03/87	E00258	2 OF 4

TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk	Wgh		
1	202738	–	<0.005	–	–	–	–	–		
2	202739	–	0.010	–	–	–	–	–		
3	202740	–	<0.005	–	–	–	–	–		
4	202741	–	0.010	–	–	–	–	–		
5	202893	–	–	<0.01	–	–	–	–		
6	202894	–	–	<0.01	–	–	–	–		
7	202895	–	–	<0.01	–	–	–	–		
8	202896	–	–	<0.01	–	–	–	–		
9	202897	–	–	<0.01	–	–	–	–		
10	202898	–	–	<0.01	–	–	–	–		
11	202899	–	–	<0.01	–	–	–	–		
12	202900	–	–	<0.01	–	–	–	–		
13	202904	–	–	<0.01	–	–	–	–		
14	202905	–	–	<0.01	–	–	–	–		
15	202906	–	–	<0.01	–	–	–	–		
16	202907	–	–	<0.01	–	–	–	–		
17	202908	–	–	<0.01	–	–	–	–		
18	202909	–	–	<0.01	–	–	–	–		
19	202910	–	–	<0.01	–	–	–	–		
20	202911	–	–	<0.01	–	–	–	–		
21	202912	–	–	<0.01	–	–	–	–		
22	202913	–	–	<0.01	–	–	–	–		
23	202914	–	–	<0.01	–	–	–	–		
24	202915	–	–	<0.01	–	–	–	–		
25	202916	–	–	<0.01	–	–	–	–		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04311	25/03/87	E00258	3 OF 4

TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk	Wgh		
1	202917	–	–	<0.01	–	–	–	–		
2	202572	41.710	–	–	–	–	–	51.5		
3	202573	0.560	–	–	1.350	–	–	73.2		
4	202574	5.840	–	–	–	–	–	92.9		
5	202575	24.130	–	–	18.130	–	–	100.5		
6	202576	250.00	–	–	365.50	–	–	74.7		
7	202577	1.480	–	–	–	–	–	43.4		
8	202578	0.430	–	–	–	–	–	91.4		
9	202579	0.130	–	–	–	–	–	68.8		
10	202580	45.350	–	–	38.680	–	–	48.0		
11	202581	<0.008	–	–	–	–	–	87.9		
12	202582	0.050	–	–	–	–	–	108.5		
13	202583	4.450	–	–	8.400	–	–	93.2		
14	202918	4.610	–	–	8.610	–	–	99.0		
15	202919	1.530	–	–	–	–	–	76.2		
16	202920	<0.008	–	–	–	–	–	78.3		
17	202921	0.910	–	–	–	–	–	93.2		
18	202922	0.790	–	–	–	–	–	106.9		
19	202923	<0.008	–	–	–	–	–	66.3		
20	202585	<0.008	–	–	–	–	–	–		
21	202586	0.190	–	–	–	–	–	–		
22	202587	<0.008	–	–	–	–	–	–		
23	202588	0.400	–	–	0.950	–	–	–		
24	202589	0.030	–	–	–	–	–	–		
25	202590	1.070	–	–	–	–	–	–		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04311	25/03/87	E00258	4 OF 4

TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk	Wgh		
1	202591	0.010	–	–	–	–	–	–		
2	202592	<0.008	–	–	–	–	–	–		
3	202593	0.160	–	–	–	–	–	–		
4	202594	0.010	–	–	–	–	–	–		
5	202595	<0.008	–	–	–	–	–	–		
6	202596	<0.008	–	–	–	–	–	–		
7	202597	0.070	–	–	–	–	–	–		
8	202945	<0.008	–	–	0.050	–	–	–		
9	202946	<0.008	–	–	–	–	–	–		
10	202947	<0.008	–	–	–	–	–	–		
11	202948	<0.008	–	–	–	–	–	–		
12	202949	1.310	–	–	0.450	–	–	–		
13	202950	<0.008	–	–	–	–	–	–		
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.008	0.005	0.01	0.008	0.005	0.01	0.1		
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	GMS		
25	METHOD	309	313	329	309	313	329	199		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
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Phone (09) 458 7999 Telex AA92560
Telex AA 93224

ANALYTICAL REPORT No. 7.5.08.04332

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
E00259	DN 4836,7,8

DATE RECEIVED	RESULTS REQUIRED
19/03/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
18	31/03/87	1	215

STATE OF SAMPLES	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PUL. VERIZE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	SO	Prep: 005,017						Cu,Pb,Zn,Ag/101,As/114		
	Various	SO							Au,AuChk/329		
	216079/80,216139/50	SS	Prep: 005,017						Cu,Pb,Zn,Ag/101,As/114		
	216079/80,216139/50	SS							Au,AuChk/309		
	216097/98,216101/11	PC	Prep: 005,001,017						Cu,Pb,Zn,Ag/101,As/114		

RESULTS TO

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO

C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorption	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER A. J. Eddy

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04332	31/03/87	E00259	1 OF 18

TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	As
1	202742	5	-	<5	-	195	-	<0.5	-	<1
2	202743	<5	-	<5	-	25	-	<0.5	-	<1
3	202744	<5	-	<5	-	55	-	<0.5	-	<1
4	202745	<5	-	<5	-	30	-	<0.5	-	<1
5	202746	<5	-	585	-	430	-	2.0	-	2
6	202747	<5	-	<5	-	40	-	<0.5	-	<1
7	202748	<5	-	540	-	60	-	<0.5	-	6
8	202749	<5	-	135	-	100	-	<0.5	-	<1
9	202750	<5	-	35	-	10	-	<0.5	-	<1
10	202926	<5	-	<5	-	10	-	<0.5	-	<1
11	202927	<5	-	<5	-	10	-	<0.5	-	<1
12	202928	<5	-	<5	-	10	-	<0.5	-	<1
13	202929	<5	-	<5	-	15	-	<0.5	-	<1
14	202930	<5	-	<5	-	10	-	<0.5	-	1
15	202931	<5	-	<5	-	25	-	<0.5	-	<1
16	202932	<5	-	<5	-	10	-	<0.5	-	<1
17	202933	<5	-	<5	-	15	-	<0.5	-	<1
18	202934	<5	-	<5	-	15	-	<0.5	-	<1
19	202935	<5	-	<5	-	10	-	<0.5	-	<1
20	202936	<5	-	<5	-	15	-	<0.5	-	<1
21	202937	<5	-	100	-	75	-	<0.5	-	2
22	202938	<5	-	<5	-	25	-	<0.5	-	<1
23	202939	<5	-	<5	-	55	-	<0.5	-	<1
24	202940	<5	-	<5	-	45	-	<0.5	-	<1
25	202941	<5	-	<5	-	150	-	<0.5	-	<1

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04332	31/03/87	E00259	2 OF 18

TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	As
1	202942	<5	–	15	–	95	–	<0.5	–	1
2	216001	<5	–	<5	–	60	–	<0.5	–	<1
3	216002	10	–	70	–	15	–	<0.5	–	83
4	216003	<5	–	10	–	45	–	<0.5	–	2
5	216004	<5	–	<5	–	5	–	<0.5	–	<1
6	216005	<5	–	<5	–	10	–	<0.5	–	<1
7	216006	<5	–	<5	–	10	–	<0.5	–	<1
8	216007	<5	–	<5	–	10	–	<0.5	–	<1
9	216008	<5	–	<5	–	5	–	<0.5	–	<1
10	216009	<5	–	<5	–	10	–	<0.5	–	<1
11	216010	<5	–	<5	–	10	–	<0.5	–	<1
12	216011	<5	–	<5	–	85	–	<0.5	–	<1
13	216012	<5	–	<5	–	25	–	<0.5	–	<1
14	216013	<5	–	<5	–	10	–	<0.5	–	<1
15	216014	<5	–	<5	–	15	–	<0.5	–	<1
16	216015	<5	–	5	–	35	–	<0.5	–	<1
17	216016	<5	–	290	–	630	–	<0.5	–	1
18	216017	10	–	<5	–	20	–	<0.5	–	<1
19	216018	<5	–	<5	–	10	–	<0.5	–	<1
20	216019	<5	–	<5	–	10	–	<0.5	–	<1
21	216020	<5	–	<5	–	10	–	<0.5	–	<1
22	216021	5	–	35	–	85	–	<0.5		<1
23	216022	10	–	80	–	120	–	2.0	–	1
24	216023	<5	–	30	–	110	–	<0.5	–	3
25	216024	<5	–	<5	–	30	–	<0.5	–	<1

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SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	As
1	216025	<5	–	<5	–	35	–	<0.5	–	<1
2	216026	<5	–	90	–	100	–	<0.5	–	<1
3	216027	5	–	90	–	55	–	<0.5	–	<1
4	216028	<5	–	10	–	40	–	<0.5	–	<1
5	216029	<5	–	10	–	35	–	<0.5	–	<1
6	216030	<5	–	<5	–	60	–	<0.5	–	<1
7	216031	<5	–	<5	–	85	–	<0.5	–	<1
8	216032	<5	–	<5	–	15	–	<0.5	–	<1
9	216033	<5	–	<5	–	25	–	<0.5	–	<1
10	216034	<5	–	<5	–	10	–	<0.5	–	<1
11	216035	<5	–	<5	–	25	–	<0.5	–	<1
12	216036	10	–	<5	–	15	–	<0.5	–	<1
13	216037	<5	–	<5	–	10	–	<0.5	–	<1
14	216038	<5	–	<5	–	15	–	<0.5	–	<1
15	216039	5	–	<5	–	390	–	<0.5	–	<1
16	216040	<5	–	165	–	290	–	<0.5	–	<1
17	216041	<5	–	<5	–	60	–	<0.5	–	<1
18	216042	<5	–	<5	–	15	–	<0.5	–	<1
19	216043	<5	–	<5	–	25	–	<0.5	–	<1
20	216044	<5	–	<5	–	150	–	<0.5	–	<1
21	216045	<5	–	<5	–	45	–	<0.5	–	<1
22	216046	<5	–	<5	–	20	–	<0.5	–	<1
23	216047	<5	–	<5	–	15	–	<0.5	–	<1
24	216048	<5	–	<5	–	10	–	<0.5	–	<1
25	216049	<5	–	10	–	25	–	<0.5	–	<1

Results in ppm unless otherwise specified
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SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	As
1	216050	<5	–	<5	–	10	–	<0.5	–	<1
2	216051	<5	–	<5	–	10	–	2.0	–	<1
3	216052	80	–	35	–	45	–	<0.5	–	15
4	216053	10	–	<5	–	140	–	<0.5	–	<1
5	216054	<5	–	<5	–	40	–	<0.5	–	<1
6	216055	<5	–	<5	–	20	–	<0.5	–	<1
7	216056	5	–	20	–	30	–	<0.5	–	<1
8	216057	<5	–	<5	–	30	–	<0.5	–	<1
9	216058	<5	–	70	–	40	–	<0.5	–	<1
10	216059	<5	–	10	–	10	–	<0.5	–	<1
11	216060	<5	–	40	–	95	–	<0.5	–	<1
12	216061	<5	–	20	–	45	–	<0.5	–	<1
13	216062	<5	–	<5	–	20	–	<0.5	–	<1
14	216063	<5	–	<5	–	30	–	<0.5	–	<1
15	216064	<5	–	<5	–	20	–	<0.5	–	<1
16	216065	<5	–	15	–	45	–	<0.5	–	1
17	216066	<5	–	<5	–	90	–	<0.5	–	<1
18	216067	<5	–	<5	–	25	–	<0.5	–	<1
19	216068	<5	–	<5	–	15	–	<0.5	–	<1
20	216069	<5	–	5	–	80	–	<0.5	–	1
21	216070	<5	–	<5	–	10	–	<0.5	–	2
22	216071	<5	–	<5	–	15	–	<0.5	–	<1
23	216072	<5	–	<5	–	10	–	<0.5	–	<1
24	216073	5	–	<5	–	20	–	<0.5	–	<1
25	216074	225	–	145	–	10	–	<0.5	–	1

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SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	As
1	216075	<5	–	235	–	215	–	<0.5	–	1
2	216076	<5	–	<5	–	35	–	<0.5	–	<1
3	216077	<5	–	<5	–	50	–	<0.5	–	<1
4	216078	<5	–	<5	–	30	–	<0.5	–	<1
5	216151	<5	–	<5	–	75	–	<0.5	–	<1
6	216152	<5	–	<5	–	70	–	<0.5	–	<1
7	216153	<5	–	<5	–	65	–	<0.5	–	<1
8	216154	<5	–	<5	–	45	–	<0.5	–	2
9	216155	<5	–	<5	–	50	–	<0.5	–	1
10	216156	<5	–	<5	–	30	–	<0.5	–	1
11	216157	<5	–	<5	–	25	–	<0.5	–	1
12	216158	<5	–	<5	–	35	–	<0.5	–	<1
13	216159	<5	–	<5	–	25	–	<0.5	–	<1
14	216160	<5	–	<5	–	25	–	<0.5	–	<1
15	216161	<5	–	<5	–	125	–	<0.5	–	<1
16	216162	<5	–	<5	–	55	–	<0.5	–	<1
17	216163	5	–	<5	–	30	–	<0.5	–	1
18	216164	<5	–	<5	–	30	–	<0.5	–	<1
19	216165	<5	–	<5	–	35	–	<0.5	–	<1
20	216166	5	–	<5	–	30	–	<0.5	–	<1
21	216167	5	–	485	–	295	–	<0.5	–	<1
22	216168	10	–	135	–	20	–	<0.5	–	<1
23	216169	<5	–	5	–	20	–	<0.5	–	<1
24	216170	<5	–	60	–	55	–	<0.5	–	3
25	216171	5	–	<5	–	25	–	<0.5	–	<1

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SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	As
1	216172	<5	–	<5	–	10	–	<0.5	–	<1
2	216173	<5	–	<5	–	25	–	<0.5	–	<1
3	216174	<5	–	<5	–	15	–	<0.5	–	<1
4	216175	<5	–	<5	–	15	–	<0.5	–	<1
5	216176	<5	–	<5	–	20	–	<0.5	–	<1
6	216177	<5	–	<5	–	5	–	<0.5	–	<1
	216178	<5	–	<5	–	<5	–	<0.5	–	<1
8	216179	<5	–	<5	–	10	–	<0.5	–	<1
9	216180	<5	–	<5	–	10	–	<0.5	–	<1
10	216181	<5	–	<5	–	10	–	<0.5	–	<1
11	216182	<5	–	<5	–	5	–	<0.5	–	<1
12	216183	<5	–	<5	–	15	–	<0.5	–	<1
13	216184	<5	–	<5	–	5	–	<0.5	–	<1
14	216185	<5	–	10	–	170	–	<0.5	–	<1
15	216186	<5	–	<5	–	65	–	<0.5	–	<1
16	216187	<5	–	<5	–	120	–	<0.5	–	<1
17	216188	<5	–	<5	–	5	–	<0.5	–	<1
18	216189	<5	–	<5	–	30	–	<0.5	–	<1
19	216190	<5	–	<5	–	<5	–	<0.5	–	<1
20	216191	<5	–	<5	–	40	–	<0.5	–	<1
21	216192	<5	–	<5	–	20	–	<0.5	–	<1
22	216193	<5	–	100	–	15	–	2.0	–	<1
23	216194	<5	–	<5	–	<5	–	<0.5	–	<1
24	216195	<5	–	<5	–	<5	–	<0.5	–	<1
25	216201	380	–	185	–	20	–	<0.5	–	95

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TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	As
1	216202	25	–	<5	–	<5	–	<0.5	–	7
2	216203	285	–	<5	–	15	–	<0.5	–	8
3	216204	30	–	<5	–	105	–	<0.5	–	3
4	216205	<5	–	<5	–	<5	–	<0.5	–	5
5	216206	<5	–	<5	–	70	–	<0.5	–	1
6	216207	<5	–	<5	–	20	–	<0.5	–	1
	216208	<5	–	<5	–	35	–	<0.5	–	1
8	216209	<5	–	<5	–	<5	–	<0.5	–	2
9	216210	<5	–	<5	–	20	–	<0.5	–	1
10	216211	<5	–	<5	–	45	–	<0.5	–	1
11	216212	<5	–	<5	–	35	–	<0.5	–	1
12	216213	55	–	45	–	<5	–	<0.5	–	64
13	216214	<5	–	75	–	15	–	<0.5	–	4
14	216215	<5	–	275	–	10	–	<0.5	–	1
15	216216	25	–	45	–	65	–	<0.5	–	11
16	216217	105	–	<5	–	25	–	<0.5	–	13
17	216218	215	–	5	–	30	–	<0.5	–	13
18	216219	200	–	<5	–	10	–	<0.5	–	90
19	216220	30	–	15	–	<5	–	<0.5	–	16
20	216221	65	–	<5	–	15	–	<0.5	–	24
21	216222	45	–	<5	–	40	–	<0.5	–	13
22	216223	45	–	<5	–	10	–	<0.5	–	77
23	216224	65	–	<5	–	10	–	<0.5	–	150
24	216225	65	–	65	–	15	–	<0.5	–	610
25	216226	<5	–	<5	–	10	–	<0.5	–	7

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TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	As
1	216227	<5	–	<5	–	15	–	<0.5	–	4
2	216228	<5	–	<5	–	15	–	<0.5	–	11
3	216229	<5	–	<5	–	10	–	<0.5	–	10
4	216079	5	–	<5	–	<5	–	<0.5	–	1
5	216080	10	–	<5	–	30	–	<0.5	–	1
6	216139	<5	–	<5	–	<5	–	<0.5	–	<1
7	216140	5	–	<5	–	10	–	<0.5	–	1
8	216141	<5	–	<5	–	<5	–	<0.5	–	<1
9	216142	5	–	<5	–	<5	–	<0.5	–	<1
10	216143	<5	–	<5	–	<5	–	<0.5	–	<1
11	216144	<5	–	<5	–	<5	–	<0.5	–	1
12	216145	<5	–	<5	–	10	–	<0.5	–	<1
13	216146	<5	–	<5	–	<5	–	<0.5	–	<1
14	216147	<5	–	<5	–	<5	–	<0.5	–	<1
15	216148	<5	–	<5	–	<5	–	<0.5	–	<1
16	216149	<5	–	<5	–	<5	–	<0.5	–	<1
17	216150	<5	–	<5	–	20	–	<0.5	–	1
18	216097	<5	–	<5	–	10	–	<0.5	–	1
19	216098	<5	–	<5	–	<5	–	3.0	–	<1
20	216101	<5	–	<5	–	25	–	<0.5	–	1
21	216102	<5	–	<5	–	10	–	4.0	–	<1
22	216103	<5	–	<5	–	5	–	<0.5	–	<1
23	216104	<5	–	<5	–	5	–	<0.5	–	1
24	216105	<5	–	<5	–	20	–	<0.5	–	1
25	216106	<5	–	<5	–	5	–	<0.5	–	<1

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TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	As
1	216107	<5	-	<5	-	10	-	<0.5	-	<1
2	216108	<5	-	<5	-	15	-	<0.5	-	<1
3	216109	<5	-	<5	-	15	-	<0.5	-	<1
4	216110	<5	-	<5	-	<5	-	<0.5	-	<1
5	216111	<5	-	<5	-	<5	-	<0.5	-	<1
6	202943	<5	-	<5	-	30	-	<0.5	-	<1
7	202944	5	-	<5	-	150	-	<0.5	-	<1
8	202998	-	0.620	-	66000	-	39.500	-	206	260
9	202999	510	-	-	1100	1900	-	-	39	3000
10	203000	-	37.500	145	-	960	-	-	41	75
11	216099	1600	-	-	1875	545	-	-	52	7400
12	216100	2500	-	215	-	190	-	-	43	86
13	216196	90	-	<5	-	70	-	<0.5	-	2
14	216199	335	-	<5	-	140	-	<0.5	-	17
15	216200	80	-	<5	-	260	-	<0.5	-	13
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	0.003	5	25	5	0.003	0.5	2	1
24	UNITS	PPM	%	PPM	PPM	PPM	%	PPM	PPM	PPM
25	METHOD	101	104	101	104	101	104	101	104	114

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk			
1	202742	–	–	<0.01	–	–	–			
2	202743	–	–	<0.01	–	–	–			
3	202744	–	–	<0.01	–	–	–			
4	202745	–	–	<0.01	–	–	–			
5	202746	–	–	<0.01	–	–	–			
6	202747	–	–	<0.01	–	–	–			
7	202748	–	–	<0.01	–	–	–			
8	202749	–	–	<0.01	–	–	–			
9	202750	–	–	<0.01	–	–	–	Soils		
10	202926	–	–	<0.01	–	–	–	Kayger 10		
11	202927	–	–	<0.01	–	–	–			
12	202928	–	–	<0.01	–	–	–			
13	202929	–	–	<0.01	–	–	–			
14	202930	–	–	<0.01	–	–	–			
15	202931	–	–	<0.01	–	–	–			
16	202932	–	–	<0.01	–	–	–			
17	202933	–	–	<0.01	–	–	–			
18	202934	–	–	<0.01	–	–	–			
19	202935	–	–	<0.01	–	–	–			
20	202936	–	–	<0.01	–	–	–			
21	202937	–	–	<0.01	–	–	–			
22	202938	–	–	<0.01	–	–	–			
23	202939	–	–	<0.01	–	–	–			
24	202940	–	–	<0.01	–	–	–			
25	202941	–	–	<0.01	–	–	–			

Results in ppm unless otherwise specified
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04332	31/03/87	E00259	11 OF 18

TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk			
1	202942	–	–	<0.01	–	–	–	Soil V10		
2	216001	–	–	<0.01	–	–	–			
3	216002	–	–	<0.01	–	–	–			
4	216003	–	–	<0.01	–	–	–			
5	216004	–	–	0.06	–	–	0.03			
6	216005	–	–	<0.01	–	–	–			
7	216006	–	–	<0.01	–	–	–			
8	216007	–	–	<0.01	–	–	–			
9	216008	–	–	<0.01	–	–	–			
10	216009	–	–	<0.01	–	–	–	Soils		
11	216010	–	–	<0.01	–	–	–	Voyager		10
12	216011	–	–	<0.01	–	–	–			
13	216012	–	–	<0.01	–	–	–			
14	216013	–	–	<0.01	–	–	–			
15	216014	–	–	<0.01	–	–	–			
16	216015	–	–	<0.01	–	–	–			
17	216016	–	–	<0.01	–	–	–			
18	216017	–	–	<0.01	–	–	–			
19	216018	–	–	<0.01	–	–	–			
20	216019	–	–	<0.01	–	–	–			
21	216020	–	–	<0.01	–	–	–			
22	216021	–	–	<0.01	–	–	–			
23	216022	–	–	<0.01	–	–	–			
24	216023	–	–	0.23	–	–	0.12			
25	216024	–	–	<0.01	–	–	–			

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04332	31/03/87	E00259	12 OF 18

TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk			
1	216025	–	–	<0.01	–	–	–			
2	216026	–	–	<0.01	–	–	–			
3	216027	–	–	<0.01	–	–	–			
4	216028	–	–	<0.01	–	–	–			
5	216029	–	–	<0.01	–	–	–			
6	216030	–	–	<0.01	–	–	–			
7	216031	–	–	<0.01	–	–	–			
8	216032	–	–	<0.01	–	–	–			
9	216033	–	–	<0.01	–	–	–			
10	216034	–	–	<0.01	–	–	–	Soils		
11	216035	–	–	<0.01	–	–	–	Ukyuger		10
12	216036	–	–	<0.01	–	–	–			
13	216037	–	–	<0.01	–	–	–			
14	216038	–	–	<0.01	–	–	–			
15	216039	–	–	<0.01	–	–	–			
16	216040	–	–	<0.01	–	–	–			
17	216041	–	–	<0.01	–	–	–			
18	216042	–	–	<0.01	–	–	<0.01			
19	216043	–	–	<0.01	–	–	–			
20	216044	–	–	<0.01	–	–	–			
21	216045	–	–	0.04	–	–	0.03			
22	216046	–	–	<0.01	–	–	–			
23	216047	–	–	<0.01	–	–	–			
24	216048	–	–	<0.01	–	–	–			
25	216049	–	–	<0.01	–	–	–			

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04332	31/03/87	E00259	13 OF 18

TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk			
1	216050	–	–	<0.01	–	–	–			
2	216051	–	–	<0.01	–	–	–			
3	216052	–	–	<0.01	–	–	–			
4	216053	–	–	<0.01	–	–	–			
5	216054	–	–	<0.01	–	–	–			
6	216055	–	–	<0.01	–	–	–			
7	216056	–	–	<0.01	–	–	–			
8	216057	–	–	<0.01	–	–	–	Soils		
9	216058	–	–	<0.01	–	–	–	Voyager 10		
10	216059	–	–	<0.01	–	–	–			
11	216060	–	–	<0.01	–	–	–			
12	216061	–	–	<0.01	–	–	–			
13	216062	–	–	<0.01	–	–	–			
14	216063	–	–	<0.01	–	–	–			
15	216064	–	–	<0.01	–	–	–			
16	216065	–	–	<0.01	–	–	–			
17	216066	–	–	<0.01	–	–	–			
18	216067	–	–	<0.01	–	–	–			
19	216068	–	–	<0.01	–	–	–			
20	216069	–	–	<0.01	–	–	–			
21	216070	–	–	<0.01	–	–	–			
22	216071	–	–	<0.01	–	–	–			
23	216072	–	–	<0.01	–	–	–			
24	216073	–	–	<0.01	–	–	–			
25	216074	–	–	<0.01	–	–	–			

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04332	31/03/87	E00259	14 OF 18

TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk			
1	216075	–	–	<0.01	–	–	–			
2	216076	–	–	<0.01	–	–	–	Soils		
3	216077	–	–	<0.01	–	–	–	Voyager 10		
4	216078	–	–	<0.01	–	–	–			
5	216151	–	–	<0.01	–	–	–			
6	216152	–	–	<0.01	–	–	–			
7	216153	–	–	<0.01	–	–	–	Soils		
8	216154	–	–	<0.01	–	–	–			
9	216155	–	–	<0.01	–	–	–	Woolaroo		
10	216156	–	–	<0.01	–	–	–	Creek		
11	216157	–	–	<0.01	–	–	–			
12	216158	–	–	<0.01	–	–	–			
13	216159	–	–	<0.01	–	–	–			
14	216160	–	–	<0.01	–	–	–			
15	216161	–	–	<0.01	–	–	–			
16	216162	–	–	<0.01	–	–	–			
17	216163	–	–	<0.01	–	–	–			
18	216164	–	–	<0.01	–	–	–	Soils		
19	216165	–	–	<0.01	–	–	–	Waterloo		
20	216166	–	–	<0.01	–	–	–	Creek		
21	216167	–	–	<0.01	–	–	–			
22	216168	–	–	<0.01	–	–	–			
23	216169	–	–	<0.01	–	–	–			
24	216170	–	–	<0.01	–	–	–			
25	216171	–	–	<0.01	–	–	–			

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SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk			
1	216172	–	–	<0.01	–		Soils	Waterloo Creek		
2	216173	–	–	<0.01	–	–	–			
3	216174	–	–	<0.01	–	–	–			
4	216175	–	–	<0.01	–	–	–			
5	216176	–	–	<0.01	–	–	–			
6	216177	–	–	<0.01	–	–	–			
7	216178	–	–	<0.01	–	–	–			
8	216179	–	–	<0.01	–	–	–			
9	216180	–	–	<0.01	–	–	–			
10	216181	–	–	<0.01	–	–	–	Soils		
11	216182	–	–	<0.01	–	–	Woolloomooloo			
12	216183	–	–	<0.01	–	–	–	Creek		
13	216184	–	–	<0.01	–	–	–			
14	216185	–	–	<0.01	–	–	–			
15	216186	–	–	<0.01	–	–	–			
16	216187	–	–	<0.01	–	–	–			
17	216188	–	–	<0.01	–	–	–			
18	216189	–	–	<0.01	–	–	–			
19	216190	–	–	<0.01	–	–	–			
20	216191	–	–	<0.01	–	–	–			
21	216192	–	–	<0.01	–	–	–			
22	216193	–	–	<0.01	–	–	–			
23	216194	–	–	<0.01	–	–	–			
24	216195	–	–	<0.01	–	–	–			
25	216201	–	–	<0.01	–	–	–	Soils	V12	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk			
1	216202	–	–	<0.01	–	–	–			
2	216203	–	–	<0.01	–	–	–			
3	216204	–	–	<0.01	–	–	–			
4	216205	–	–	<0.01	–	–	–			
5	216206	–	–	<0.01	–	–	–			
6	216207	–	–	<0.01	–	–	–			
7	216208	–	–	<0.01	–	–	–			
8	216209	–	–	<0.01	–	–	–	Soils		
9	216210	–	–	<0.01	–	–	–	Voyager 12		
10	216211	–	–	<0.01	–	–	–			
11	216212	–	–	<0.01	–	–	–			
12	216213	–	–	<0.01	–	–	–			
13	216214	–	–	<0.01	–	–	–			
14	216215	–	–	<0.01	–	–	–			
15	216216	–	–	<0.01	–	–	–			
16	216217	–	–	<0.01	–	–	–			
17	216218	–	–	<0.01	–	–	–			
18	216219	–	–	<0.01	–	–	–			
19	216220	–	–	<0.01	–	–	–			
20	216221	–	–	<0.01	–	–	–			
21	216222	–	–	<0.01	–	–	–			
22	216223	–	–	0.03	–	–	0.02			
23	216224	–	–	<0.01	–	–	–			
24	216225	–	–	<0.01	–	–	–			
25	216226	–	–	<0.01	–	–	–			

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk	
1	216227	–	–	<0.01	–	–	–	Soils
2	216228	–	–	<0.01	–	–	–	Voyager 12
3	216229	–	–	<0.01	–	–	–	
4	216079	0.080	–	–	0.010	–	–	Voyager 33
5	216080	0.360	–	–	–	–	–	-80#
6	216139	0.030	–	–	–	–	–	
7	216140	0.030	–	–	–	–	–	
8	216141	<0.008	–	–	–	–	–	Woodsmoodoo
9	216142	0.430	–	–	–	–	–	CREEK
10	216143	<0.008	–	–	–	–	–	
11	216144	<0.008	–	–	–	–	–	-80#
12	216145	<0.008	–	–	–	–	–	
13	216146	<0.008	–	–	–	–	–	
14	216147	<0.008	–	–	–	–	–	
15	216148	<0.008	–	–	–	–	–	
16	216149	0.080	–	–	–	–	–	
17	216150	<0.008	–	–	0.010	–	–	
18	216097	0.040	–	–	–	–	–	Pinned Core
19	216098	82.000	–	–	56.400	–	–	Voyager 33
20	216101	1.030	–	–	–	–	–	
21	216102	102.70	–	–	103.40	–	–	Woodsmoodoo
22	216103	0.450	–	–	–	–	–	Creek
23	216104	1.150	–	–	–	–	–	Pinned Core
24	216105	10.670	–	–	4.810	–	–	
25	216106	0.300	–	–	–	–	–	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04332	31/03/87	E00259	18 OF 18

TUBE No.	SAMPLE No.	Au	Au	Au	AuChk	AuChk	AuChk			
1	216107	1.170	–	–	–	–	–			
2	216108	14.270	–	–	16.350	–	–	Woolaomaloo Creek Panned Concentrates		
3	216109	<0.008	–	–	–	–	–			
4	216110	0.390	–	–	–	–	–			
5	216111	1.500	–	–	–	–	–			
6	202943	–	<0.005	–	–	–	–	Voyager 10 Rock Chips		
7	202944	–	<0.005	–	–	–	–			
8	202998	–	0.970	–	–	0.930	–	Voyager 19 Rock Chip		
9	202999	–	0.440	–	–	–	–	Voyager 12 Rock Chip		
10	~~203000~~		~~0.225~~							
11	216099	–	0.015	–	–	–	–	Voyager 33 Rock Chips		
12	216100	–	0.045	–	–	–	–			
13	216196	–	<0.005	–	–	–	–	Woolaomaloo Creek Rock Chip		
14	216199	–	<0.005	–	–	–	–	Waterloo Creek Rock Chips		
15	216200	–	<0.005	–	–	–	–			
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.008	0.005	0.01	0.008	0.005	0.01			
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM			
25	METHOD	309	313	329	309	313	329			

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ANALYTICAL REPORT No. 7.5.08.04349

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
E00260	DN 4839,40

DATE RECEIVED	RESULTS REQUIRED
25/03/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
18	08/04/87	1	218

PREFER BELOW	SAMPLE NUMBERS	STATE OF SAMPLES	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	SO	Prep: 005,013,016							Cu,Pb,Zn,Ag/101,As/114		
	Various	SO								Au,AuChk/329		
	216132/138	SS	Prep: 005,007,016							Cu,Pb,Zn,Ag/101,As/114		
	216132/138	SS								Au,AuChk/309		
	216112/117	PC	Prep: 005,001,016							Cu,Pb,Zn,Ag/101,As/114,Mgh?/199		

RESULTS TO

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO

C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
other	VFA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	1 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	216081	5	<5	-	85	<0.5	-	1	-	-
2	216082	5	<5	-	75	<0.5	-	<1	-	-
3	216083	5	10	-	100	<0.5	-	<1	-	-
4	216084	5	10	-	10	<0.5	-	<1	-	-
5	216085	5	<5	-	15	<0.5	-	<1	-	-
6	216086	5	<5	-	10	<0.5	-	<1	-	-
7	216087	10	110	-	55	<0.5	-	2	-	-
8	216088	10	10	-	5	<0.5	-	<1	-	-
9	216089	5	<5	-	20	<0.5	-	<1	-	-
10	216090	5	<5	-	20	<0.5	-	<1	-	-
11	216091	10	<5	-	15	<0.5	-	<1	-	-
12	216092	5	<5	-	10	<0.5	-	<1	-	-
13	216093	5	<5	-	10	<0.5	-	<1	-	-
14	216094	<5	<5	-	55	<0.5	-	1	-	-
15	216095	5	5	-	15	<0.5	-	1	-	-
16	216096	<5	<5	-	10	<0.5	-	<1	-	-
17	216230	10	<5	-	10	<0.5	-	1	-	-
18	216231	5	<5	-	5	<0.5	-	1	-	-
19	216232	5	<5	-	10	<0.5	-	1	-	-
20	216233	10	<5	-	10	<0.5	-	11	-	-
21	216234	5	5	-	10	<0.5	-	1	-	-
22	216235	5	10	-	50	<0.5	-	2	-	-
23	216236	5	15	-	10	<0.5	-	1	-	-
24	216237	5	10	-	30	<0.5	-	<1	-	-
25	216238	5	<5	-	20	<0.5	-	<1	-	-

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	2 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	216239	10	10	–	30	<0.5	–	1	–	–
2	216240	<5	<5	–	25	<0.5	–	<1	–	–
3	216241	5	<5	–	15	<0.5	–	<1	–	–
4	216242	5	5	–	15	<0.5	–	<1	–	–
5	216243	5	<5	–	15	<0.5	–	<1	–	–
6	216244	5	<5	–	20	<0.5	–	<1	–	–
7	216245	<5	10	–	15	<0.5	–	<1	–	–
8	216246	5	20	–	15	<0.5	–	<1	–	–
9	216247	15	100	–	200	<0.5	–	1	–	–
10	216248	5	15	–	10	<0.5	–	<1	–	–
11	216249	5	<5	–	10	<0.5	–	<1	–	–
12	216250	5	<5	–	5	<0.5	–	1	–	–
13	216251	<5	<5	–	10	<0.5	–	5	–	–
14	216252	5	<5	–	5	<0.5	–	23	–	–
15	216253	5	<5	–	<5	<0.5	–	3	–	–
16	216254	5	<5	–	5	<0.5	–	<1	–	–
17	216255	5	<5	–	5	<0.5	–	<1	–	–
18	216256	5	<5	–	<5	<0.5	–	<1	–	–
19	216257	<5	<5	–	<5	<0.5	–	<1	–	–
20	216258	5	<5	–	<5	<0.5	–	13	–	–
21	216259	5	<5	–	5	<0.5	–	2	–	–
22	216260	625	<5	–	25	1.0	–	3	–	–
23	216261	10	<5	–	10	<0.5	–	<1	–	–
24	216262	10	<5	–	15	<0.5	–	<1	–	–
25	216263	10	10	–	15	<0.5	–	<1	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	3 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	216264	<5	<5	–	10	<0.5	–	<1	–	–
2	216265	5	<5	–	15	<0.5	–	<1	–	–
3	216266	5	5	–	165	<0.5	–	<1	–	–
4	216267	5	<5	–	15	<0.5	–	<1	–	–
5	216268	5	<5	–	25	<0.5	–	<1	–	–
6	216269	<5	<5	–	10	<0.5	–	<1	–	–
7	216270	5	<5	–	25	<0.5	–	<1	–	–
8	216271	5	<5	–	15	<0.5	–	<1	–	–
9	216272	5	<5	–	20	<0.5	–	<1	–	–
10	216273	10	<5	–	50	<0.5	–	<1	–	–
11	216274	<5	<5	–	15	<0.5	–	<1	–	–
12	216275	5	330	–	4350	<0.5	–	<1	–	–
13	216276	5	<5	–	40	<0.5	–	<1	–	–
14	216277	5	95	–	555	<0.5	–	2	–	–
15	216278	5	<5	–	10	<0.5	–	<1	–	–
16	216279	<5	<5	–	10	<0.5	–	<1	–	–
17	216280	5	<5	–	10	<0.5	–	<1	–	–
18	216281	10	<5	–	20	<0.5	–	<1	–	–
19	216282	<5	<5	–	10	<0.5	–	<1	–	–
20	216283	<5	<5	–	10	<0.5	–	<1	–	–
21	216284	<5	<5	–	15	<0.5	–	<1	–	–
22	216285	20	20	–	10	<0.5	–	<1	–	–
23	216286	5	<5	–	5	<0.5	–	<1	–	–
24	216287	35	<5	–	15	<0.5	–	21	–	–
25	216288	20	15	–	15	<0.5	–	<1	–	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	4 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	216289	5	<5	–	15	<0.5	–	1	–	–
2	216290	5	15	–	15	<0.5	–	4	–	–
3	216291	70	<5	–	10	<0.5	–	3	–	–
4	216292	20	<5	–	10	<0.5	–	1	–	–
5	216293	5	<5	–	10	<0.5	–	16	–	–
6	216294	10	<5	–	10	<0.5	–	1	–	–
7	216295	5	<5	–	5	<0.5	–	<1	–	–
8	216296	5	<5	–	5	<0.5	–	<1	–	–
9	216297	15	15	–	10	<0.5	–	1	–	–
10	216298	5	<5	–	10	<0.5	–	<1	–	–
11	216299	5	<5	–	<5	<0.5	–	<1	–	–
12	216300	5	<5	–	5	<0.5	–	<1	–	–
13	216301	5	<5	–	10	<0.5	–	<1	–	–
14	216302	15	<5	–	10	<0.5	–	<1	–	–
15	216303	10	20	–	5	<0.5	–	4	–	–
16	216304	5	<5	–	5	<0.5	–	<1	–	–
17	216305	10	<5	–	10	<0.5	–	<1	–	–
18	216306	5	<5	–	5	<0.5	–	<1	–	–
19	216307	15	<5	–	<5	<0.5	–	<1	–	–
20	216308	<5	<5	–	<5	<0.5	–	<1	–	–
21	216309	<5	<5	–	<5	<0.5	–	<1	–	–
22	216310	10	<5	–	10	<0.5	–	1	–	–
23	216311	5	<5	–	20	<0.5	–	<1	–	–
24	216312	5	15	–	20	<0.5	–	<1	–	–
25	216313	5	<5	–	10	<0.5	–	<1	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	5 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	216314	5	<5	–	45	<0.5	–	<1	–	–
2	216315	5	<5	–	10	<0.5	–	<1	–	–
3	216316	10	<5	–	25	<0.5	–	<1	–	–
4	216317	15	15	–	55	<0.5	–	2	–	–
5	216318	5	<5	–	10	<0.5	–	<1	–	–
6	216319	5	<5	–	10	<0.5	–	<1	–	–
7	216320	<5	<5	–	5	<0.5	–	<1	–	–
8	216321	5	<5	–	10	<0.5	–	<1	–	–
9	216322	5	<5	–	5	<0.5	–	<1	–	–
10	216323	5	<5	–	<5	<0.5	–	<1	–	–
11	216324	<5	<5	–	5	<0.5	–	<1	–	–
12	216325	10	<5	–	<5	<0.5	–	10	–	–
13	216326	5	<5	–	10	<0.5	–	1	–	–
14	216327	5	<5	–	<5	<0.5	–	1	–	–
15	216328	5	<5	–	<5	<0.5	–	3	–	–
16	216329	5	<5	–	10	<0.5	–	<1	–	–
17	216330	10	<5	–	5	<0.5	–	<1	–	–
18	216331	10	<5	–	10	<0.5	–	<1	–	–
19	216332	5	<5	–	5	<0.5	–	<1	–	–
20	216333	5	<5	–	5	<0.5	–	<1	–	–
21	216334	5	<5	–	5	<0.5	–	<1	–	–
22	216335	5	<5	–	10	<0.5	–	<1	–	–
23	216336	5	70	–	5	<0.5	–	<1	–	–
24	216337	<5	10	–	<5	<0.5	–	2	–	–
25	216338	<5	<5	–	<5	<0.5	–	2	–	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	6 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	216339	5	<5	–	5	<0.5	–	<1	–	–
2	216340	5	60	–	100	<0.5	–	2	–	–
3	216341	5	<5	–	15	<0.5	–	<1	–	–
4	216342	5	<5	–	10	<0.5	–	<1	–	–
5	216343	5	<5	–	75	<0.5	–	1	–	–
6	216344	<5	15	–	10	<0.5	–	<1	–	–
7	216345	5	<5	–	45	<0.5	–	1	–	–
8	216346	5	5	–	120	<0.5	–	1	–	–
9	216347	10	15	–	65	<0.5	–	2	–	–
10	216348	10	10	–	25	<0.5	–	<1	–	–
11	216349	10	<5	–	25	<0.5	–	1	–	–
12	216350	10	<5	–	15	<0.5	–	<1	–	–
13	216352	5	<5	–	40	<0.5	–	<1	–	–
14	216353	10	50	–	90	<0.5	–	2	–	–
15	216354	5	15	–	70	<0.5	–	1	–	–
16	216355	10	15	–	30	<0.5	–	1	–	–
17	216356	10	10	–	80	<0.5	–	2	–	–
18	216357	<5	<5	–	50	<0.5	–	2	–	–
19	216358	10	<5	–	120	<0.5	–	1	–	–
20	216359	5	<5	–	35	<0.5	–	2	–	–
21	216360	5	<5	–	30	<0.5	–	1	–	–
22	216361	5	65	–	45	<0.5	–	1	–	–
23	216362	<5	<5	–	10	<0.5	–	<1	–	–
24	216363	<5	10	–	70	<0.5	–	<1	–	–
25	216364	<5	<5	–	15	<0.5	–	<1	–	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	216365	15	30	-	25	<0.5	-	<1	-	-
2	216366	5	20	-	10	<0.5	-	<1	-	-
3	216367	10	30	-	100	<0.5	-	1	-	-
4	216368	5	<5	-	20	<0.5	-	<1	-	-
5	216369	5	10	-	65	<0.5	-	<1	-	-
6	216370	5	15	-	10	<0.5	-	<1	-	-
7	216371	<5	10	-	10	<0.5	-	<1	-	-
8	216372	5	<5	-	15	<0.5	-	1	-	-
9	216373	<5	35	-	10	<0.5	-	<1	-	-
10	216374	10	<5	-	25	<0.5	-	<1	-	-
11	216375	25	<5	-	85	<0.5	-	2	-	-
12	216376	<5	<5	-	20	<0.5	-	<1	-	-
13	216377	15	5	-	55	<0.5	-	1	-	-
14	216378	5	<5	-	10	<0.5	-	2	-	-
15	216379	5	<5	-	10	<0.5	-	1	-	-
16	216380	5	<5	-	10	<0.5	-	<1	-	-
17	216381	<5	<5	-	20	<0.5	-	<1	-	-
18	216382	5	<5	-	35	<0.5	-	<1	-	-
19	216401	5	20	-	25	<0.5	-	1	-	-
20	216402	5	5	-	15	<0.5	-	1	-	-
21	216403	5	15	-	20	<0.5	-	<1	-	-
22	216404	5	15	-	25	<0.5	-	<1	-	-
23	216406	5100	120	-	20	<0.5	-	10	-	-
24	216407	20	5	-	10	<0.5	-	<1	-	-
25	216408	15	<5	-	<5	<0.5	-	<1	-	-

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SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	216409	10	<5	–	<5	<0.5	–	<1	–	–
2	216410	5	<5	–	<5	<0.5	–	<1	–	–
3	216411	10	<5	–	5	<0.5	–	<1	–	–
4	216412	10	35	–	5	<0.5	–	<1	–	–
5	216413	10	<5	–	15	<0.5	–	<1	–	–
6	216414	70	140	–	230	<0.5	–	1	–	–
7	216415	10	<5	–	10	<0.5	–	<1	–	–
8	216416	5	30	–	40	<0.5	–	<1	–	–
9	216417	10	25	–	45	<0.5	–	1	–	–
10	216418	15	15	–	65	<0.5	–	<1	–	–
11	216419	25	<5	–	35	<0.5	–	<1	–	–
12	216420	50	<5	–	45	<0.5	–	<1	–	–
13	216421	25	<5	–	30	<0.5	–	<1	–	–
14	216422	10	<5	–	35	<0.5	–	<1	–	–
15	216423	40	190	–	230	<0.5	–	<1	–	–
16	216424	2700	–	1325	35	<0.5	–	48	–	–
17	216132	10	115	–	85	<0.5	–	5	2.040	–
18	216133	80	150	–	25	<0.5	–	210	0.010	–
19	216134	35	30	–	15	<0.5	–	83	<0.008	–
20	216135	15	110	–	255	<0.5	–	3	<0.008	–
21	216136	50	<5	–	115	<0.5	–	12	0.020	–
22	216137	75	<5	–	100	<0.5	–	12	0.230	–
23	216138	65	<5	–	90	<0.5	–	12	<0.008	–
24	216112	25	<5	–	35	<0.5	–	4	0.090	–
25	216113	45	<5	–	60	<0.5	–	10	0.310	–

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	As	Au	Au
1	216114	20	<5	-	45	<0.5	-	7	<0.008	-
2	216115	10	55	-	85	<0.5	-	<1	2.930	-
3	216116	15	<5	-	10	<0.5	-	47	1.030	-
4	216117	5	10	-	10	-	117	<1	500.80	-
5	202992	10	5	-	10	<0.5	-	3	-	0.370
6	202993	15	<5	-	25	<0.5	-	10	-	4.030
7	202994	1400	-	60600	36500	-	25	2	-	0.050
8	202995	15	610	-	770	<0.5	-	8	-	0.040
9	216391	590	-	3700	125	-	57	<1	-	0.590
10	216392	220	255	-	40	1.0	-	<1	-	0.070
11	216393	530	455	-	40	1.0	-	6	-	0.650
12	216394	40	<5	-	50	<0.5	-	<1	-	0.050
13	216395	125	60	-	20	<0.5	-	<1	-	0.040
14	216396	10	<5	-	5	<0.5	-	<1	-	0.010
15	216397	5	<5	-	15	<0.5	-	<1	-	0.010
16	216398	280	135	-	10	28.0	-	19	-	1.810
17	216399	5	<5	-	10	<0.5	-	<1	-	<0.005
18	216405	10	60	-	20	<0.5	-	<1	-	<0.005
19										
20										
21										
22										
23	DETECTION	5	5	25	5	0.5	2	1	0.008	0.005
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	104	101	101	104	114	309	313

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SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	Wght				
1	216081	<0.01	–	–	–	–				
2	216082	<0.01	–	–	–	–				
3	216083	<0.01	–	–	–	–				
4	216084	<0.01	–	–	–	–				
5	216085	<0.01	–	–	–	–				
6	216086	<0.01	–	–	–	–				
7	216087	<0.01	–	–	–	–				
8	216088	<0.01	–	–	–	–				
9	216089	<0.01	–	–	–	–				
10	216090	<0.01	–	–	–	–				
11	216091	<0.01	–	–	–	–				
12	216092	<0.01	–	–	–	–				
13	216093	<0.01	–	–	–	–				
14	216094	<0.01	–	–	–	–				
15	216095	<0.01	–	–	–	–				
16	216096	<0.01	–	–	–	–				
17	216230	<0.01	–	–	–	–				
18	216231	<0.01	–	–	–	–				
19	216232	<0.01	–	–	–	–				
20	216233	<0.01	–	–	–	–				
21	216234	<0.01	–	–	–	–				
22	216235	<0.01	–	–	–	–				
23	216236	<0.01	–	–	–	–				
24	216237	<0.01	–	–	–	–				
25	216238	<0.01	–	–	–	–				

Soil Sample
Voyager 10.

Results in ppm unless otherwise specified
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— = element not determined

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SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	11 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	Wght				
1	216239	<0.01	–	–	–	–				
2	216240	<0.01	–	–	–	–				
3	216241	<0.01	–	–	–	–				
4	216242	<0.01	–	–	–	–				
5	216243	<0.01	–	–	–	–				
6	216244	<0.01	–	–	–	–				
7	216245	<0.01	–	–	–	–				
8	216246	<0.01	–	–	–	–				
9	216247	<0.01	–	–	–	–	Soil	Samples		
10	216248	<0.01	–	–	–	–				
11	216249	<0.01	–	–	–	–	Voyager	10.		
12	216250	<0.01	–	–	–	–				
13	216251	<0.01	–	–	–	–				
14	216252	<0.01	–	–	–	–				
15	216253	0.03	–	–	–	–				
16	216254	<0.01	–	–	–	–				
17	216255	<0.01	–	–	–	–				
18	216256	<0.01	–	–	–	–				
19	216257	<0.01	–	–	–	–				
20	216258	<0.01	–	–	–	–				
21	216259	<0.01	–	–	–	–				
22	216260	<0.01	–	–	–	–				
23	216261	<0.01	–	–	–	–				
24	216262	<0.01	–	–	–	–				
25	216263	<0.01	–	–	–	–				

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	12 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	Wght				
1	216264	<0.01	–	–	–	–				
2	216265	<0.01	–	–	–	–				
3	216266	<0.01	–	–	–	–				
4	216267	<0.01	–	–	–	–				
5	216268	<0.01	–	–	–	–				
6	216269	<0.01	–	–	–	–				
7	216270	<0.01	–	–	–	–				
8	216271	<0.01	–	–	–	–				
9	216272	<0.01	–	–	–	–		Soil Samples		
10	216273	<0.01	–	–	–	–				
11	216274	<0.01	–	–	–	–		Voyager 10.		
12	216275	<0.01	–	–	–	–				
13	216276	<0.01	–	–	–	–				
14	216277	<0.01	–	–	–	–				
15	216278	0.71	–	–	0.02	–				
16	216279	<0.01	–	–	–	–				
17	216280	<0.01	–	–	–	–				
18	216281	<0.01	–	–	–	–				
19	216282	<0.01	–	–	–	–				
20	216283	<0.01	–	–	–	–				
21	216284	<0.01	–	–	–	–				
22	216285	<0.01	–	–	–	–				
23	216286	<0.01	–	–	–	–				
24	216287	<0.01	–	–	–	–				
25	216288	<0.01	–	–	–	–				

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
.	7.5.08.04349	08/04/87	E00260	13 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	Wght				
1	216289	<0.01	–	–	–	–				
2	216290	<0.01	–	–	–	–				
3	216291	<0.01	–	–	–	–				
4	216292	<0.01	–	–	–	–				
5	216293	<0.01	–	–	–	–				
6	216294	<0.01	–	–	–	–				
7	216295	<0.01	–	–	–	–				
8	216296	<0.01	–	–	–	–				
9	216297	<0.01	–	–	–	–	Soil Samples			
10	216298	<0.01	–	–	–	–				
11	216299	<0.01	–	–	–	–	Voyager 10.			
12	216300	<0.01	–	–	–	–				
13	216301	<0.01	–	–	–	–				
14	216302	<0.01	–	–	–	–				
15	216303	<0.01	–	–	–	–				
16	216304	<0.01	–	–	–	–				
17	216305	<0.01	–	–	–	–				
18	216306	<0.01	–	–	–	–				
19	216307	<0.01	–	–	–	–				
20	216308	<0.01	–	–	–	–				
21	216309	<0.01	–	–	–	–				
22	216310	<0.01	–	–	–	–				
23	216311	<0.01	–	–	–	–				
24	216312	<0.01	–	–	–	–				
25	216313	<0.01	–	–	–	–				

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	14 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	Wght				
1	216314	<0.01	–	–	–	–				
2	216315	<0.01	–	–	–	–				
3	216316	<0.01	–	–	–	–				
4	216317	<0.01	–	–	–	–				
5	216318	<0.01	–	–	–	–				
6	216319	<0.01	–	–	–	–				
7	216320	<0.01	–	–	–	–				
8	216321	0.03	–	–	–	–				
9	216322	<0.01	–	–	–	–	Soil Samples			
10	216323	<0.01	–	–	–	–				
11	216324	<0.01	–	–	–	–	Voyager 10.			
12	216325	<0.01	–	–	–	–				
13	216326	<0.01	–	–	–	–				
14	216327	<0.01	–	–	–	–				
15	216328	<0.01	–	–	–	–				
16	216329	<0.01	–	–	–	–				
17	216330	<0.01	–	–	–	–				
18	216331	<0.01	–	–	–	–				
19	216332	<0.01	–	–	–	–				
20	216333	<0.01	–	–	–	–				
21	216334	<0.01	–	–	–	–				
22	216335	<0.01	–	–	–	–				
23	216336	<0.01	–	–	–	–				
24	216337	<0.01	–	–	–	–				
25	216338	<0.01	–	–	–	–				

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	15 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	Wght	
1	216339	<0.01	–	–	–	–	
2	216340	<0.01	–	–	–	–	
3	216341	<0.01	–	–	–	–	Soil Samples
4	216342	<0.01	–	–	–	–	
5	216343	<0.01	–	–	–	–	Voyager 10.
6	216344	<0.01	–	–	–	–	
7	216345	<0.01	–	–	–	–	
8	216346	<0.01	–	–	–	–	
9	216347	<0.01	–	–	–	–	
10	216348	<0.01	–	–	–	–	Soil Samples
11	216349	<0.01	–	–	–	–	Magnetic Anamoly 2.
12	216350	0.06	–	–	–	–	
13	216352	<0.01	–	–	–	–	
14	216353	<0.01	–	–	–	–	
15	216354	<0.01	–	–	–	–	Soil Samples
16	216355	<0.01	–	–	–	–	
17	216356	<0.01	–	–	–	–	Line 6
18	216357	<0.01	–	–	–	–	
19	216358	<0.01	–	–	–	–	North Porphyry
20	216359	<0.01	–	–	–	–	Contact.
21	216360	<0.01	–	–	–	–	
22	216361	<0.01	–	–	–	–	
23	216362	<0.01	–	–	–	–	
24	216363	<0.01	–	–	–	–	
25	216364	<0.01	–	–	–	–	

Results in ppm unless otherwise specified
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X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	16 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	Wght	
1	216365	<0.01	–	–	–	–	Soil Samples
2	216366	<0.01	–	–	–	–	Line 6
3	216367	<0.01	–	–	–	–	North Porphyry
4	216368	<0.01	–	–	–	–	Contact.
5	216369	<0.01	–	–	–	–	
6	216370	<0.01	–	–	–	–	
7	216371	<0.01	–	–	–	–	Soil Sample Magnetic Anomaly 5
8	216372	<0.01	–	–	–	–	Rock Chip
9	216373	<0.01	–	–	–	–	Magnetic Anomaly 5.
10	216374	<0.01	–	–	–	–	
11	216375	<0.01	–	–	–	–	
12	216376	<0.01	–	–	–	–	Soil Sample Magnetic Anomaly 5
13	216377	<0.01	–	–	–	–	Rock Chip Sample Magnetic Anomaly
14	216378	<0.01	–	–	–	–	Soil Sample Magnetic Anomaly 5.
15	216379	<0.01	–	–	–	–	Rock Chip Sample Magnetic Anomaly 5.
16	216380	<0.01	–	–	–	–	
17	216381	<0.01	–	–	–	–	
18	216382	<0.01	–	–	–	–	
19	216401	<0.01	–	–	–	–	Soil Sample
20	216402	<0.01	–	–	–	–	Magnetic Anomaly 2.
21	216403	<0.01	–	–	–	–	
22	216404	<0.01	–	–	–	–	
23	216406	0.03	–	–	–	–	Soil Sample
24	216407	0.03	–	–	–	–	Magnetic Anomaly 3.
25	216408	<0.01	–	–	–	–	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	17 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	Wght	
1	216409	<0.01	–	–	–	–	
2	216410	<0.01	–	–	–	–	Soil Sample
3	216411	<0.01	–	–	–	–	Magnetic Anomaly 3.
4	216412	<0.01	–	–	–	–	
5	216413	<0.01	–	–	–	–	
6	216414	<0.01	–	–	–	–	
7	216415	<0.01	–	–	–	–	
8	216416	<0.01	–	–	–	–	
9	216417	<0.01	–	–	–	–	Soil Samples
10	216418	<0.01	–	–	–	–	Magnetic Anomaly 4.
11	216419	<0.01	–	–	–	–	
12	216420	<0.01	–	–	–	–	
13	216421	<0.01	–	–	–	–	
14	216422	<0.01	–	–	–	–	
15	216423	<0.01	–	–	–	–	
16	216424	<0.01	–	–	–	–	
17	216132	–	–	–	–	–	-80# Stream Sediment Voyager 24
18	216133	–	–	–	–	–	-80# Stream Sediment
19	216134	–	–	–	–	–	Voyager 12.
20	216135	–	0.150	–	–	–	
21	216136	–	–	–	–	–	-80# Stream
22	216137	–	–	–	–	–	Sediment
23	216138	–	–	–	–	–	Wanderer North.
24	216112	–	–	–	–	53.0	Panned Concentrates
25	216113	–	–	–	–	76.1	Wanderer North.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04349	08/04/87	E00260	18 OF 18

TUBE No.	SAMPLE No.	Au	AuChk	AuChk	AuChk	Wght	
1	216114	–	–	–	–	63.9	Panned Concentrates
2	216115	–	–	–	–	76.2	Wanderer North.
3	216116	–	0.620	–	–	98.3	
4	216117	–	–	–	–	36.4	
5	202992	–	–	–	–	–	Rock Chip
6	202993	–	–	–	–	–	Wanderer North.
7	202994	–	–	–	–	–	
8	202995	–	–	–	–	–	
9	216391	–	–	–	–	–	Rock Chip
10	216392	–	–	–	–	–	Voyager 6
11	216393	–	–	–	–	–	
12	216394	–	–	0.020	–	–	
13	216395	–	–	–	–	–	
14	216396	–	–	–	–	–	
15	216397	–	–	–	–	–	
16	216398	–	–	–	–	–	Rockchip Voyager 6.
17	216399	–	–	–	–	–	Rockchip Porphyry Contact,
18	216405	–	–	–	–	–	Rock Chip
19							Magnetic Anomaly 2.
20							
21							
22							
23	DETECTION	0.01	0.008	0.005	0.01	0.1	
24	UNITS	PPM	PPM	PPM	PPM	GMS	
25	METHOD	329	309	313	329	199	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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52 Mungala Road, Welshpool, W.A. 6106
Phone (09) 458 7999 Telex AA92560

ANALYTICAL REPORT No. 7.5.08.04411

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No. 00260 PROJECT RE 04349

DATE RECEIVED 14/04/87 RESULTS REQUIRED ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
8	21/04/87	1	191

STATE OF SAMPLES	PRE-TREATMENT								ANALYSIS			
REFER TO FLOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
Various	PU								Ag,AuChk/309		

RESULTS TO
B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO
C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorption	AAS
split core	SC	hydrochlogic acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04411	21/04/87	00260	1 OF 8

TUBE No.	SAMPLE No.	Au	AuChk
1	216081	<0.008	–
2	216082	0.020	<0.008
3	216083	0.020	–
4	216084	0.010	–
5	216085	<0.008	–
6	216086	<0.008	–
7	216087	<0.008	–
8	216088	<0.008	–
9	216089	<0.008	–
10	216090	<0.008	–
11	216091	<0.008	–
12	216092	<0.008	<0.008
13	216093	<0.008	–
14	216094	<0.008	–
15	216095	<0.008	–
16	216096	<0.008	–
17	216230	<0.008	–
18	216231	<0.008	–
19	216232	<0.008	–
20	216233	<0.008	–
21	216234	<0.008	–
22	216235	<0.008	<0.008
23	216236	<0.008	–
24	216237	<0.008	–
25	216238	<0.008	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04411	21/04/87	00260	2 OF 8

TUBE No.	SAMPLE No.	Au	AuChk							
1	216239	<0.008	–							
2	216240	<0.008	–							
3	216241	<0.008	–							
4	216242	<0.008	–							
5	216243	<0.008	–							
6	216244	<0.008	–							
7	216245	<0.008	–							
8	216246	<0.008	–							
9	216247	<0.008	–							
10	216248	<0.008	–							
11	216249	<0.008	–							
12	216250	<0.008	<0.008							
13	216251	<0.008	–							
14	216252	<0.008	–							
15	216253	<0.008	–							
16	216254	0.010	–							
17	216255	0.030	–							
18	216256	<0.008	–							
19	216257	0.010	–							
20	216258	<0.008	–							
21	216259	0.020	–							
22	216260	0.010	<0.008							
23	216261	<0.008	–							
24	216262	<0.008	–							
25	216263	<0.008	–							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04411	21/04/87	00260	3 OF 8

TUBE No.	SAMPLE No.	Au	AuChk							
1	216264	<0.008	–							
2	216265	<0.008	–							
3	216266	<0.008	–							
4	216267	<0.008	–							
5	216268	<0.008	–							
6	216269	<0.008	–							
7	216270	<0.008	<0.008							
8	216271	<0.008	–							
9	216272	<0.008	–							
10	216273	<0.008	–							
11	216274	<0.008	–							
12	216275	<0.008	–							
13	216276	<0.008	–							
14	216277	<0.008	–							
15	216278	<0.008	–							
16	216279	<0.008	<0.008							
17	216280	0.010	–							
18	216281	<0.008	–							
19	216282	<0.008	–							
20	216283	<0.008	–							
21	216284	<0.008	–							
22	216285	<0.008	–							
23	216286	<0.008	–							
24	216287	<0.008	–							
25	216288	<0.008	<0.008							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04411	21/04/87	00260	4 OF 8

TUBE No.	SAMPLE No.	Au	AuChk							
1	216289	<0.008	–							
2	216290	<0.008	–							
3	216291	<0.008	–							
4	216292	<0.008	–							
5	216293	<0.008	–							
6	216294	<0.008	–							
7	216295	<0.008	–							
8	216296	<0.008	–							
9	216297	<0.008	–							
10	216298	<0.008	–							
11	216299	<0.008	–							
12	216300	<0.008	–							
13	216301	<0.008	–							
14	216302	<0.008	–							
15	216303	<0.008	–							
16	216304	<0.008	–							
17	216305	<0.008	–							
18	216306	<0.008	–							
19	216307	<0.008	–							
20	216308	0.230	–							
21	216309	<0.008	–							
22	216310	<0.008	–							
23	216311	<0.008	–							
24	216312	<0.008	–							
25	216313	<0.008	–							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04411	21/04/87	00260	5 OF 8

TUBE No.	SAMPLE No.	Au	AuChk							
1	216314	<0.008	–							
2	216315	0.010	–							
3	216316	0.010	–							
4	216317	<0.008	–							
5	216318	<0.008	–							
6	216319	<0.008	–							
7	216320	<0.008	–							
8	216321	<0.008	–							
9	216322	<0.008	–							
10	216323	<0.008	–							
11	216324	<0.008	–							
12	216325	<0.008	–							
13	216326	<0.008	–							
14	216327	0.820	–							
15	216328	<0.008	–							
16	216329	<0.008	–							
17	216330	<0.008	–							
18	216331	<0.008	–							
19	216332	<0.008	–							
20	216333	<0.008	–							
21	216334	<0.008	<0.008							
22	216335	<0.008	–							
23	216336	<0.008	–							
24	216337	<0.008	–							
25	216338	<0.008	–							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04411	21/04/87	00260	6 OF 8

TUBE No.	SAMPLE No.	Au1	Au1Chk							
1	216339	<0.008	<0.008							
2	216340	<0.008	–							
3	216341	0.010	–							
4	216342	<0.008	–							
5	216343	<0.008	–							
6	216344	<0.008	–							
7	216345	<0.008	–							
8	216346	<0.008	–							
9	216347	<0.008	–							
10	216348	<0.008	–							
11	216349	<0.008	–							
12	216350	<0.008	<0.008							
13	216352	<0.008	–							
14	216353	<0.008	–							
15	216354	<0.008	–							
16	216355	<0.008	–							
17	216356	<0.008	–							
18	216357	<0.008	–							
19	216358	<0.008	–							
20	216359	<0.008	–							
21	216360	<0.008	–							
22	216361	<0.008	–							
23	216362	<0.008	<0.008							
24	216363	<0.008	–							
25	216364	<0.008	–							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04411	21/04/87	00260	7 OF 8

TUBE No.	SAMPLE No.	Au	AuChk							
1	216365	<0.008	–							
2	216366	<0.008	–							
3	216367	<0.008	–							
4	216368	<0.008	–							
5	216369	<0.008	–							
6	216370	<0.008	–							
7	216371	<0.008	–							
8	216372	<0.008	–							
9	216373	<0.008	–							
10	216374	<0.008	<0.008							
11	216375	<0.008	–							
12	216376	<0.008	–							
13	216377	<0.008	–							
14	216378	<0.008	–							
15	216379	<0.008	–							
16	216380	<0.008	–							
17	216381	<0.008	–							
18	216382	<0.008	–							
19	216401	<0.008	–							
20	216402	<0.008	–							
21	216403	<0.008	–							
22	216404	<0.008	–							
23	216406	<0.008	–							
24	216407	<0.008	–							
25	216408	<0.008	<0.008							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04411	21/04/87	00260	8 OF 8

TUBE No.	SAMPLE No.	Au	AuChk
1	216409	<0.008	–
2	216410	<0.008	–
3	216411	<0.008	–
4	216412	<0.008	–
5	216413	0.030	–
6	216414	<0.008	–
7	216415	<0.008	–
8	216416	<0.008	–
9	216417	<0.008	–
10	216418	<0.008	–
11	216419	<0.008	–
12	216420	<0.008	–
13	216421	<0.008	<0.008
14	216422	<0.008	–
15	216423	<0.008	–
16	216424	<0.008	–
17			
18			
19			
20			
21			
22			
23	DETECTION	0.008	0.008
24	UNITS	PPM	PPM
25	METHOD	309	309

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106
Telex AA92560

ANALYTICAL REPORT No. 7.5.08.04373

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

	ORDER No.	PROJECT
B. Roxburgh Cyprus Minerals P.O. Box 493 North Sydney N.S.W. 2060	00259	

DATE RECEIVED	RESULTS REQUIRED
02/04/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	10/04/87	1	42

	PRE-TREATMENT								ANALYSIS			
	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER (SEE REMARKS)	*NOTE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	216160/72,216201/29	PU							Au,AuChk/309		

RESULTS TO

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO

C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorption	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF extraction	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
other	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04373	10/04/87	00259	1 OF 2

TUBE No.	SAMPLE No.	Au	AuChk							
1	216160	<0.008	–							
2	216161	<0.008	–							
3	216162	<0.008	–							
4	216163	<0.008	–							
5	216164	<0.008	–							
6	216165	<0.008	–							
7	216166	<0.008	–							
8	216167	<0.008	–							
9	216168	<0.008	–							
10	216169	<0.008	–							
11	216170	<0.008	–							
12	216171	<0.008	–							
13	216172	<0.008	–							
14	216201	<0.008	–							
15	216202	<0.008	–							
16	216203	<0.008	–							
17	216204	<0.008	–							
18	216205	<0.008	–							
19	216206	<0.008	–							
20	216207	<0.008	–							
21	216208	<0.008	–							
22	216209	<0.008	–							
23	216210	<0.008	–							
24	216211	<0.008	–							
25	216212	<0.008	–							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04373	10/04/87	00259	2 OF 2

TUBE No.	SAMPLE No.	Au	AuChk
1	216213	<0.008	–
2	216214	<0.008	–
3	216215	<0.008	–
4	216216	<0.008	–
5	216217	<0.008	–
6	216218	<0.008	–
7	216219	<0.008	–
8	216220	<0.008	–
9	216221	<0.008	–
10	216222	<0.008	–
11	216223	0.020	–
12	216224	<0.008	–
13	216225	<0.008	–
14	216226	<0.008	–
15	216227	<0.008	<0.008
16	216228	0.030	–
17	216229	<0.008	–
18			
19			
20			
21			
22			
23	DETECTION	0.008	0.008
24	UNITS	PPPM	PPM
25	METHOD	309	309

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALABS

Affiliation of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Waterford, W.A. 6106
Telex AA92560

ANALYTICAL REPORT No. 7.5.08.04379

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
00259	

DATE RECEIVED	RESULTS REQUIRED
02/04/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
5	10/04/87	1	104

TICK BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULV. VESSEL	SIEVE	OTHER (SEE REMARKS)	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	PU							Au,AuChk/309		
	Various	PU							Au(2)/309		

RESULTS TO

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO

C. Torrey
Cyprus Minerals
P.O. Box 230
Zeehan
Tasmania 7469

REMARKS

STATE OF SAMPLES

whole core	WC
split core	SC
cutting	CU
rock	Ro
soil	SO
pulp	PU
water	WA
tissue	TI
stream sediment	SS
heavy mineral	HM

ANALYSIS — PREPARATION

perchloric acid	A1	cold acid	CA
hydrochloric acid	A2	specific sulphide	SS
nitric acid	A3	other mixed acids	Mx
aqua regia	A4	alkaline attack	AA
nitric-perchloric	A5	volatilization	VO
HF mixture	A6	ignition	IG
HF under pressure	A7	pressed powder (XRF)	PP
fusion	A8	glass fusion (XRF)	GF

ANALYSIS — METHOD

atomic absorption	AAS
x-ray fluorescence	XRF
spectrophotometry	SPEC
colorimetry	COL
chromatography	CHR
titration	TTN
other chemicals means	CHEM
miscellaneous	MISC
fluorescence	FLUOR
inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04379	10/04/87	00259	1 OF 5

TUBE No.	SAMPLE No.	Au	Au (2)	AuChk						
1	202742	1.270	<0.008	<0.008						
2	202743	<0.008	–	–						
3	202744	<0.008	–	–						
4	202745	<0.008	–	–						
5	202746	<0.008	–	–						
6	202747	<0.008	–	–						
7	202748	<0.008	–	–						
8	202749	<0.008	–	–						
9	202750	<0.008	–	–						
10	202926	<0.008	–	–						
11	202927	<0.008	–	–						
12	202928	<0.008	–	–						
13	202929	<0.008	–	<0.008						
14	202930	<0.008	–	–						
15	202931	<0.008	–	–						
16	202932	<0.008	–	–						
17	202933	<0.008	–	–						
18	202934	<0.008	–	–						
19	202935	<0.008	–	–						
20	202936	<0.008	–	–						
21	202937	<0.008	–	–						
22	202938	<0.008	–	–						
23	202939	<0.008	–	–						
24	202940	<0.008	–	–						
25	202941	<0.008	–	–						

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04379	10/04/87	00259	2 OF 5

TUBE No.	SAMPLE No.	Au	Au (2)	AuChk						
1	202942	<0.008	–	–						
2	216001	<0.008	–	–						
3	216002	<0.008	–	–						
4	216003	<0.008	–	–						
5	216004	0.030	–	–						
6	216005	<0.008	–	–						
7	216006	<0.008	–	–						
8	216007	<0.008	–	–						
9	216008	<0.008	–	–						
10	216009	<0.008	–	–						
11	216010	<0.008	–	–						
12	216011	<0.008	–	–						
13	216012	<0.008	–	–						
14	216013	<0.008	–	–						
	216014	<0.008	–	–						
16	216015	<0.008	–	<0.008						
17	216016	<0.008	–	–						
18	216017	<0.008	–	–						
19	216018	<0.008	–	–						
20	216019	<0.008	–	–						
21	216020	<0.008	–	–						
22	216021	<0.008	–	–						
23	216022	SNR	–	–						
24	216023	SNR	–	–						
25	216024	<0.008	–	–						

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04379	10/04/87	00259	3 OF 5

TUBE No.	SAMPLE No.	Au	Au (2)	AuChk						
1	216025	<0.008	–	<0.008						
2	216026	<0.008	–	–						
3	216027	<0.008	–	–						
4	216028	<0.008	–	–						
5	216029	<0.008	–	–						
6	216030	<0.008	–	–						
7	216031	<0.008	–	–						
8	216032	<0.008	–	–						
9	216033	<0.008	–	–						
10	216034	<0.008	–	–						
11	216035	<0.008	–	–						
12	216036	<0.008	–	–						
13	216037	<0.008	–	–						
14	216038	<0.008	–	–						
15	216039	<0.008	–	–						
16	216040	<0.008	–	–						
17	216041	<0.008	–	<0.008						
18	216042	<0.008	–	–						
19	216043	<0.008	–	–						
20	216044	<0.008	–	–						
21	216045	<0.008	–	–						
22	216046	<0.008	–	–						
23	216047	<0.008	–	–						
24	216048	<0.008	–	–						
25	216049	<0.008	–	–						

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04379	10/04/87	00259	4 OF 5

TUBE No.	SAMPLE No.	Au	Au (2)	AuChk						
1	216050	<0.008	–	–						
2	216051	<0.008	–	<0.008						
3	216052	0.010	–	–						
4	216053	<0.008	–	–						
5	216054	<0.008	–	–						
6	216055	<0.008	–	–						
7	216056	<0.008	–	–						
8	216057	<0.008	–	–						
9	216058	<0.008	–	–						
10	216059	<0.008	–	–						
11	216060	<0.008	–	–						
12	216061	<0.008	–	–						
13	216062	<0.008	–	<0.008						
14	216063	<0.008	–	–						
15	216064	<0.008	–	–						
16	216065	<0.008	–	–						
17	216066	<0.008	–	–						
18	216067	<0.008	–	–						
19	216068	<0.008	–	–						
20	216069	<0.008	–	–						
21	216070	<0.008	–	–						
22	216071	<0.008	–	<0.008						
23	216072	<0.008	–	–						
24	216073	<0.008	–	–						
25	216074	<0.008	–	–						

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	7.5.08.04379	10/04/87	00259	5 OF 5

TUBE No.	SAMPLE No.	Au	Au(2)	AuChk						
1	216075	<0.008	–	–						
2	216076	<0.008	–	–						
3	216077	<0.008	–	–						
4	216078	<0.008	–	–						
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.008	0.008	0.008						
24	UNITS	PPM	PPM	PPM						
25	METHOD	309	309	309						

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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APPENDIX 7A

REGIONAL ROCKCHIP ANALYSES AND DESCRIPTIONS

REGIONAL ROCKCHIPS

Sample	Description	Cu	Pb	Zn	Ag	As	Au
171281	Chloritic ferruginous tuffaceous siltstone	1100	45	95	4	150	0.02
171651	Quartz-tourmaline vein + pyrite + calcite	70	35	100	0.5	-	-
171652	Pyrite-quartz-tourmaline vein	150	115	95	2	170	0.02
171653	Malachite veinlets within rhyolite tuff	3700	155	220	2.5	110	0.02
171654	Quartz-pyrite vein	445	200	340	1.5	22	-
171655	Malachite stained porphyry	1500	90	160	1	13	-
171656	Quartz-chalcopyrite-tourmaline vein ± pyrite	4.28%	75	675	-	15	-
171657	Malachite stained contact, porphyry/tuff	3400	640	135	6.5	6	0.05
171658	Rhyolitic quartz crystal tuff + MnOx veinlets	140	360	1300	1	15	-
171659	Malachite vein with rhyolitic tuff	2.24%	175	300	-	26	-
171660	Malachite vein with rhyolitic tuff	1.19%	2825	5850	28	400	-
171661	Malachite vein with rhyolitic lithic tuff	7750	2750	1050	5	88	0.02
171662	Quartz-pyrite vein + chalcopyrite + molybdenite	2100	2650	5100	7.5	400	0.02
180568	Ferruginous siliceous tuff	5	-	30	-	7	-
180569	Gossan	1650	70	145	-	800	0.05
180570	Mangoniferous, limonitic, gossan + magnetite	2.04%	200	475	24	250	0.33
180571	Mangoniferous quartz vein	2150	235	170	7	410	0.22
180572	Gossan	3100	1750	325	20	2400	0.45
180573	Gossan	1000	285	405	1.5	600	0.03
180574	Gossanous quartz vein	1300	360	300	0.5	190	0.03
180575	Gossanous float	55	120	40	-	2.25%	-
180576	Gossanous quartz vein	2250	805	525	9.5	1300	0.07
180577	Gossan	6900	955	650	180	1300	0.05
180578	Gossan + chalcopyrite + trace malachite	6750	850	510	6.5	1500	0.05
180579	Gossanous quartz vein	1350	60	115	3.5	700	-
180580	Ferruginous rhyolitic tuff	175	355	130	27.5	2800	-
180582	Ferruginous rhyolitic tuff + quartz stockwork	40	15	135	-	51	-
180594	Limonitic crystal tuff + trace pyrite	65	370	610	-	2	0.03
180595	Chloritic, tuffaceous sediment + minor MnOx	10	10	125	-	1	0.04
180596	Chloritic, tuffaceous sediment + minor MnOx	24	85	105	-	2	-
180598	Chloritic, tuffaceous siltstone	-	370	315	-	-	-
180599	Massive milk white quartz + minor limonite	30	-	10	-	-	-
180600	Slightly limonitic rhyolitic quartz crystal tuff	10	-	60	-	-	-

892479

Sample	Description	Cu	Pb	Zn	Ag	As	Au
171975	Chlorite altered quartz phyric lapilli tuff	35	-	60	-	5	-
171976	Chlorite altered quartz phyric lapilli tuff	45	180	120	1	55	-
202427	Quartz-feldspar-biotite porphyry + pyrite	50	25	100	-	24	-
202428	Chlorite rhyolitic quartz crystal tuff	5	5	70	-	7	-
202429	Gossan + galena + chlorite	105	500	85	2.5	5.55%	0.64
202430	Limonitic crystal tuff + major As oxides	626	430	115	10	3710	-
202431	Gossan + quartz-tourmaline breccia veins	55	345	30	1.5	5380	-
202432	Chloritic tuffaceous siltstone	10	10	50	-	82	-
202433	Chlorite-pyrite altered quartz crystal tuff	20	-	70	-	32	-
202434	Quartz-chlorite-sericite vein stockworks	-	-	10	-	9	-
202435	Chloritic crystal tuff	5	25	295	-	12	-
202436	Chloritic crystal tuff	-	-	30	-	6	-
202437	Vitric rhyolitic tuff + minor chlorite	-	25	245	-	5	-
202438	Chloritic arenaceous sandstone	-	10	90	-	19	-
202551	Limonitic quartz crystal tuff	10	-	40	-	4	-
202552	Chloritic, slickensided crystal tuff	15	5	35	-	1	-
202553	Chloritic, slickensided crystal tuff + pyrite	5	15	95	-	5	0.08
202554	Limonitic vein within chloritized tuffs	690	170	780	12	1.74%	0.78
202555	Fine quartz stockworks with sediments	10	5	5	-	200	-
202556	Silvery sulfide veins within tuffaceous sandstone	60	135	25	1	1.71%	0.09
202557	Limonitic chloritized tuffaceous sediment	25	285	510	-	85	-
202558	Limonitic chloritized tuffaceous sediment	15	-	45	-	54	-
202559	10m strip sample of chloritized siltstones, cherts, shales	305	80	220	2.5	15	-
202561	10m strip sample of chloritized siltstones, cherts, shales	20	40	20	-	880	-
202562	10m strip sample of chloritized siltstones, cherts, shales	35	5	30	-	55	-
202562	Gossanous sediment outcrop	610	25	40	2	160	0.1
202563	Gossanous sediment outcrop	400	135	85	-	540	0.03
202943	Brecciated quartz vein	-	-	30	-	-	-
202944	Brecciated quartz vein	5	-	150	-	-	-

EL 40/85

MOORES VALLEY AIRSTRIP

WANDERER RIVER

Sericite Qtz

Chlorite Pyrite

Wart Hill Pyroclastics / Hudson River Pyroclastics
(From Large et. al; 1982)

COPPER CREEK FAULT

Sericite Alt.

Sericite Quartz

Waterloo Creek

Chlorite Magnetite

Qtz-chl-tourmaline

LEWIS RIVER FAULT

Lewis River

OSMUND FAULT

DIORITE POINT

VERIDIAN POINT

Penders

Qtz sericite talc ± chl.

BLACK ISLAND

Drake Creek

E.L. 40 / 85

SOUTHERN OCEAN

ELLIOTT BAY

LOW ROCKY POINT

GRID CONVERGENCE 1.2°

GRID/MAGNETIC ANGLE 12.5°

892481

5 cm

LEGEND

TERTIARY
- Quartzose Gravel

JURASSIC
- Dolerite

LATE CAMBRIAN – EARLY ORDOVICIAN
- Owen Conglomerate – undifferentiated
  - – coarse quartzose sandstone
  - – siltstone
- Waterloo Creek Group – undifferentiated
  - – hematitic volcaniclastic conglomerate
  - – tuffaceous coarse sandstone and grit
  - – black shale ± pyrite
  - – fine–med. grained rhyolitic volcaniclastic

CAMBRIAN – MT. READ VOLCANICS
- Wart Hill and Hudson River Volcanics – undifferentiated
  - – fine to med. grained rhyolitic volcaniclastic
  - – rhyolitic quartz–feldspar porphyry (lavas and intrusives)
  - – dacitic porphyry
  - – coarse rhyolitic volcaniclastic
  - – siltstone
  - – siliceous conglomerate
  - – greywacke and siltstone

CAMBRIAN INTRUSIVES
- Elliott Point Porphyry
- Granite
- Microgranite
- Porphyritic Microgranite

CAMBRIAN – WESTERN EPICLASTICS
- Western Epiclastics – undifferentiated
  - – andesitic – basaltic volcanics
  - – brown–grey tuffaceous siltstone and quartzose conglomerate
  - – black shale ± pyrite
  - – fine to medium grained rhyolitic volcanics
  - – gabbro
  - – coarse rhyolitic volcaniclastic sandstone

CAMBRIAN – MAINWARING GROUP
- Mainwaring Group – undifferentiated
  - – gabbro
  - – andesite–basaltic volcanics
  - – dolomite
  - – black shale ± pyrite
  - – siltstone and sandstone

PRECAMBRIAN
- Metamorphics – quartzite, schist and phyllite

- Geological contact
- Unconformity
- Fault
- Plunging syncline
- Old workings
- Boundary between Wart Hill and Hudson River Pyroclastics. (Large et. al; 1982)
- Alteration boundary

87-2696 vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

GEOLOGICAL COMPILATION

DRAWN BY : CT/RP/RH
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.
FIG.

SCALE 1 : 25000 — 500 0 500 1000 METRES

REPORT 525 ENCLOSURE 1

EL 40/85

MOORES VALLEY AIRSTRIP

WANDERER RIVER

MAINWARING

COPPER CREEK FAULT

MT. OSMUND △ 368m

WART HILL △ 248m

Wart Hill Pyroclastics / Hudson River Pyroclastics
(From Large et. al; 1982)

Sericite Alt.

Sericite Qtz

Chlorite Pyrite

Sericite Quartz

Chlorite Magnetite

Qtz-chl-py-tourmaline

Waterloo Creek

Lewis River

Penders

Qtz sericite talc ± chl.

Drake Creek

DIORITE POINT

VERIDIAN POINT

BLACK ISLAND

LOW ROCKY POINT

OCEAN

SOUTHERN

ELLIOTT BAY

OSMUND FAULT

LEWIS RIVER FAULT

GRID CONVERGENCE 1.2°

GRID/MAGNETIC ANGLE 12.5°

E.L. 40 / 85

5 cm

LEGEND

TERTIARY
- 1 — Quartzose Gravel

JURASSIC
- 2 — Dolerite

LATE CAMBRIAN – EARLY ORDOVICIAN
- 3 — Owen Conglomerate – undifferentiated
- 3a — coarse quartzose sandstone
- 3b — siltstone
- 4 — Waterloo Creek Group – undifferentiated
- 4a — hematitic volcaniclastic conglomerate
- 4b — tuffaceous coarse sandstone and grit
- 4c — black shale ± pyrite
- 4d — fine–med. grained rhyolitic volcaniclastic

CAMBRIAN – MT. READ VOLCANICS
- 5 — Wart Hill and Hudson River Volcanics – undifferentiated
- 5a — fine to med. grained rhyolitic volcaniclastic
- 5b — rhyolitic quartz–feldspar porphyry (lavas and intrusives)
- 5c — dacitic porphyry
- 5d — coarse rhyolitic volcaniclastic
- 5e — siltstone
- 5f — siliceous conglomerate
- 5g — greywacke and siltstone

CAMBRIAN INTRUSIVES
- 6 — Elliott Point Porphyry
- 7 — Granite
- 8 — Microgranite
- 9 — Porphyritic Microgranite

CAMBRIAN – WESTERN EPICLASTICS
- 10 — Western Epiclastics – undifferentiated
- 10a — andesitic – basaitic volcanics
- 10b — brown–grey tuffaceous siltstone and quartzoze conglomerate
- 10c — black shale ± pyrite
- 10d — fine to medium grained rhyolitic volcanics
- 10e — gabbro
- 10f — coarse rhyolitic volcaniclastic sandstone

CAMBRIAN – MAINWARING GROUP
- 11 — Mainwaring Group – undifferentiated
- 11a — gabbro
- 11b — andesite–basaitic volcanics
- 11c — dolomite
- 11d — black shale ± pyrite
- 11e — siltstone and sandstone

PRECAMBRIAN
- 12 — Metamorphics – quartzite, schist and phyllite

Geological contact
Unconformity
Fault
Plunging syncline
Old workings
Boundary between Wart Hill and Hudson River Pyroclastics. (Large et. al; 1982)
Alteration boundary

892482 87-2696 vol. 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

GEOLOGICAL COMPILATION

DRAWN BY : CT/RP/RH
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.
FIG.

SCALE 1 : 25000 (500 0 500 1000 METRES)

REPORT 525 ENCLOSURE 1

EL 40/85

MOORES VALLEY AIRSTRIP

WANDERER RIVER

MAINWARING RIVER

COPPER CREEK FAULT

OSMUND FAULT

LEWIS RIVER FAULT

MT. OSMUND △ 368m

WART HILL △ 238m

Wart Hill Pyroclastics | Hudson River Pyroclastics
(From Large et. al; 1982)

Sericite Alt.

Sericite Qtz

Chlorite Pyrite

Sericite Quartz

Chlorite Magnetite

Qtz-chl-py-tourmaline

Waterloo Creek

Lewis River

Penders

Drake Creek

DIORITE POINT

VERIDIAN POINT

BLACK ISLAND

LOW ROCKY POINT

OCEAN

SOUTHERN

ELLIOTT BAY

892483

5 cm

GRID CONVERGENCE 1.2°

GRID/MAGNETIC ANGLE 12.5°

LEGEND

TERTIARY
- 1 — Quartzose Gravel

JURASSIC
- 2 (49) — Dolerite

LATE CAMBRIAN — EARLY ORDOVICIAN
- 3 — Owen Conglomerate — undifferentiated
- 3a — coarse quartzose sandstone
- 3b (2) — siltstone
- 4 (6) — Waterloo Creek Group — undifferentiated
- 4a (8) — hematitic volcaniclastic conglomerate
- 4b (9) — tuffaceous coarse sandstone and grit
- 4c (10) — black shale ± pyrite
- 4d (11) — fine–med. grained rhyolitic volcaniclastic

CAMBRIAN — MT. READ VOLCANICS
- 5 (42) — Wart Hill and Hudson River Volcanics — undifferentiated
- 5a (50) — fine to med. grained rhyolitic volcaniclastic
- 5b (51) — rhyolitic quartz–feldspar porphyry (lavas and intrusives)
- 5c (48) — dacitic porphyry
- 5d (47) — coarse rhyolitic volcaniclastic
- 5e (44) — siltstone
- 5f (41) — siliceous conglomerate
- 5g (40) — greywacke and siltstone

CAMBRIAN INTRUSIVES
- 6 (26) — Elliott Point Porphyry
- 7 (20) — Granite
- 8 (15) — Microgranite
- 9 (17) — Porphyritic Microgranite

CAMBRIAN — WESTERN EPICLASTICS
- 10 (23) — Western Epiclastics — undifferentiated
- 10a (25) — andesitic – basaltic volcanics
- 10b (60) — brown–grey tuffaceous siltstone and quartzoze conglomerate
- 10c (36) — black shale ± pyrite
- 10d (68) — fine to medium grained rhyolitic volcanics
- 10e (69) — gabbro
- 10f (70) — coarse rhyolitic volcaniclastic sandstone

CAMBRIAN — MAINWARING GROUP
- 11 — Mainwaring Group — undifferentiated
- 11a — gabbro
- 11b — andesite–basaltic volcanics
- 11c — dolomite
- 11d — black shale ± pyrite
- 11e (37) — siltstone and sandstone

PRECAMBRIAN
- 12 (55) — Metamorphics — quartzite, schist and phyllite

Geological contact
Unconformity
Fault
Plunging syncline
Old workings
Boundary between Wart Hill and Hudson River Pyroclastics. (Large et. al; 1982)
Alteration boundary

87-2696 Vol 414 7296

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

GEOLOGICAL COMPILATION

DRAWN BY : CT/RP/RH
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

SCALE 1 : 25000 (500 0 500 1000 METRES)

FIG.

REPORT 525 ENCLOSURE 1

7297

	Cu	Pb	Zn	Ag	As	Au
180568	5	–	30	–	7	
180569	1650	70	145	–	800	0.05
180570	2.04%	200	475	24	250	0.33
180571	2150	235	170	7	410	0.22
180572	3100	1750	325	20	2400	0.45
180573	1000	285	405	1.5	600	0.03
180574	1300	360	300	0.5	190	0.03
180576	2250	805	525	9.5	1300	0.07
180577	6900	955	650	180	1300	0.05
180578	6750	850	510	6.5	1500	0.05
180580	175	355	130	27.5	2800	–
180582	40	15	135	–	51	–
171281	1100	45	95	4	150	0.02

892484

5 cm

87-2696 Vol 4/4

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GRID CONVERGENCE 1.2°

GRID/MAGNETIC ANGLE 12.5°

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

INTERPRETIVE GEOLOGY AND ROCK CHIP SAMPLE RESULTS

DRAWN BY : R.J.H.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

SCALE 1 : 10000 — METRES

FIG.

REPORT 525 ENCLOSURE 2

	Cu	Pb	Zr	Ag	As	Au
180568	5	–	30	–	7	–
180569	1650	70	45	–	800	0.05
180570	2.04%	200	475	24	250	0.33
180571	2150	235	170	7	410	0.22
180572	3100	1750	325	20	2400	0.46
180573	1000	285	405	1.5	600	0.03
180574	1300	360	300	0.5	190	0.03
180576	2250	805	525	9.5	1300	0.07
180577	6900	955	650	18.0	1300	0.05
180578	8750	850	510	6.5	1500	0.05
180580	175	355	130	27.5	2800	–
180582	40	15	135	–	51	–
171281	1100	45	95	4	150	0.02

ELLIOTT BAY

892485

87-2696 Vol 414

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

INTERPRETIVE GEOLOGY AND ROCK CHIP SAMPLE RESULTS

DRAWN BY : R.J.H.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.
FIG.

SCALE 1 : 10000 200 0 200 400 METRES

REPORT 525 ENCLOSURE 2

CYPRUS

EL 40/85

MOORES VALLEY AIRSTRIP

WANDERER RIVER

WOOLOOMOOLOO CREEK

MAINWARING

FAULT

COPPER CREEK

MT. OSMUND ▲368m

WART HILL ▲238m

CAMP

DIORITE POINT

VERIDIAN POINT

SASSY CREEK

OSMUND FAULT

WATERLOO CREEK PROSPECT

LEWIS RIVER PROSPECT

LEWIS RIVER FAULT

HUDSON RIVER

KERSHAW

BARREL

PENDERS PROSPECT

BLACK ISLAND

DRAKE CREEK PROSPECT

LOW ROCKY POINT

OCEAN

SOUTHERN

ELLIOTT BAY

E.L. 40 / 85

75000mE. 80000mE. 85000mE. 90000mE.

260000mN. 255000mN. 250000mN. 245000mN. 240000mN. 239000mN.

5 cm

LEGEND

- MAJOR LINEAMENT – Predominantly faults
- SIGNIFICANT LINEAMENT – Faults, bedding, schistosity and joints
- FORM LINEAMENT – Predominantly bedding and schistosity

GN TN MN

GRID CONVERGENCE 1.2°

GRID/MAGNETIC ANGLE 12.5°

892486 87-2696 Vol 4/4 7298

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ELLIOTT BAY – E.L. 40/85

PHOTO INTERPRETED LINEAMENT MAP

DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : June '87
REVISIONS :
FILE No.

SCALE 1 : 25000 500 0 500 1000 METRES

FIG.

REPORT 525 ENCLOSURE 3

TERTIARY

1 — Quartzose Gravel

JURASSIC

2 (49) — Dolerite

LATE CAMBRIAN – EARLY ORDOVICIAN

3 (2) — Owen Conglomerate – undifferentiated
- 3a – coarse quartzose sandstone
- 3b – siltstone

4 (6) — Waterloo Creek Group – undifferentiated
- 4a (8) – hematitic volcaniclastic conglomerate
- 4b (9) – tuffaceous coarse sandstone and grit
- 4c (10) – black shale ± pyrite
- 4d (11) – fine–med. grained rhyolitic volcaniclastic

CAMBRIAN – MT. READ VOLCANICS

5 (42) — Wart Hill and Hudson River Volcanics – undifferentiated
- 5a (50) – fine to med. grained rhyolitic volcaniclastic
- 5b (51) – rhyolitic quartz–feldspar porphyry (lavas and intrusives)
- 5c (48) – dacitic porphyry
- 5d (47) – coarse rhyolitic volcaniclastic
- 5e (44) – siltstone
- 5f (41) – siliceous conglomerate
- 5g (40) – greywacke and siltstone

CAMBRIAN INTRUSIVES

6 (26) — Elliott Point Porphyry

7 (20) — Granite

8 (15) — Microgranite

9 (17) — Porphyritic Microgranite

CAMBRIAN – WESTERN EPICLASTICS

10 (23) — Western Epiclastics – undifferentiated
- 10a (25) – andesitic – basaltic volcanics
- 10b (60) – brown–grey tuffaceous siltstone and quartzoze conglomerate
- 10c (36) – black shale ± pyrite
- 10d (68) – fine to medium grained rhyolitic volcanics
- 10e (69) – gabbro
- 10f (70) – coarse rhyolitic volcaniclastic sandstone

CAMBRIAN – MAINWARING GROUP

11 (37) — Mainwaring Group – undifferentiated
- 11a – gabbro
- 11b – andesite–basaltic volcanics
- 11c – dolomite
- 11d – black shale ± pyrite
- 11e – siltstone and sandstone

PRECAMBRIAN

12 (55) — Metamorphics – quartzite, schist and phyllite

Geological contact

Unconformity

Fault

60° — Strike and dip of schistosity

60° — Strike and dip of bedding – facing indicated

Plunging syncline

Old workings

ALTERATION – Pervasive and vein controlled

Chlorite – magnetite

Sericite

Sericite – quartz

Chlorite – pyrite

Quartz – chlorite – pyrite – tourmaline

Quartz – sericite – talc ± chlorite

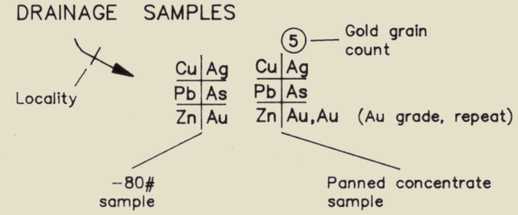
Quartz – chlorite

Quartz vein

Alteration boundary

GEOCHEMISTRY

DRAINAGE SAMPLES



ROCK CHIP SAMPLES

△ 202567 — Sample location and number

△ 202569 (Cu | Ag / Pb | As / Zn | Au) — Sample location number and assays

△ 202569 TS — Thin section sample

V33/1 — Diamond drill hole location

DETECTION LIMITS (ppm)

	Cu	Pb	Zn	Ag	As	Au	
Rocks	5	5	5	0.5	1	0.005	
–80# plus panned concentrates	5	5	5	0.5	1	0.008	
Soils	5	5	5	0.5	1	0.01 0.008	(AAS) (Fire assay)

– = Below limit of detection

892487

5 cm

7299

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

L E G E N D

DRAWN BY :
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.
SCALE 1 : METRES
FIG. 3

7300

MOORES VALLEY AIRSTRIP

E.L. 40 / 85

WANDERER RIVER

RIVER

MAINWARING

75000mE. 76000mE. 77000mE. 78000mE. 79000mE. 80000mE. 81000mE. 82000mE. 382500mE.

62000mN. 61000mN. 60000mN. 59000mN. 58000mN. 57000mN. 56000mN. 52 55000mN.

171452 — Cu 5 | Ag 0.5 | Pb 15 | As – | Zn 15 | Au – | Au –

171455 — Cu 5 | Ag – | Pb 10 | As – | Zn 10 | Au – | Au 2

171456 — Cu 10 | Ag – | Pb – | As 4 | Zn 25 | Au – | Au –

171457 — Cu 5 | Ag – | Pb – | As 2 | Zn 25 | Au – | Au –

171458 — Cu – | Ag 5 | Pb 10 | As 2 | Zn 10 | Au 0.13 | Au –

171459 — Cu 15 | Ag – | Pb – | As – | Zn – | Au – | Au –

171460 — Cu 10 | Ag – | Pb – | As 1 | Zn 15 | Au – | Au –

171461 — Cu 10 | Ag – | Pb – | As 5 | Zn 15 | Au – | Au –

171466 — Cu 25 | Ag 0.5 | Pb – | As 1 | Zn 20 | Au – | Au –

171467 — Cu 15 | Ag 0.5 | Pb 5 | As 4 | Zn 45 | Au – | Au –

171468 — Cu – | Ag 1 | Pb 10 | As 5 | Zn 40 | Au – | Au –

171469 — Cu – | Ag 0.5 | Pb – | As 7 | Zn 20 | Au – | Au –

171472 — Cu 35 | Ag 1 | Pb 20 | As 4 | Zn 65 | Au – | Au –

171473 — Cu 10 | Ag 1 | Pb 5 | As 9 | Zn 45 | Au – | Au –

171474 — Cu – | Ag 1 | Pb 10 | As 5 | Zn 20 | Au – | Au –

202598 — Cu – | Ag – | Pb 5 | As 2 | Zn 20 | Au – | Au –

202599 — Cu – | Ag – | Pb 10 | As – | Zn 15 | Au – | Au –

202600 — Cu – | Ag – | Pb – | As 1 | Zn 5 | Au – | Au –

216139 — Cu – | Ag – | Pb – | As 0.03 | Zn 216139 | Au – | Au –

216140 — Cu 5 | Ag – | Pb – | As 1 | Zn 10 | Au 0.03 | Au –

216141 — Cu – | Ag – | Pb – | As – | Zn 216141 | Au – | Au –

80-2534

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As — Analyses (ppm)
Zn | Au, Au — (Gold grade, repeat assay)

– Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

NA Denotes no analysis

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN
TN MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

892488

7300

82-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

–80# SAMPLES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 1

REPORT 525 ENCLOSURE 5

7301

MOORES VALLEY AIRSTRIP

WANDERER RIVER

WOOLOOMOOLOO CREEK

E.L. 40 / 85

83000mE. 84000mE. 85000mE. 86000mE. 87000mE. 88000mE. 89000mE. 90000mE. 390500mE.

62000mN. 61000mN. 60000mN. 59000mN. 58000mN. 57000mN. 56000mN. 55000mN.

202643 5
202642 5
202641 5 | 10
202644 10 | 30
202645 10 | 10
216146 216145 10
216144 5 | 0.3
171583 10
216147 216148 171584
171582 5
171581 5
202635 15
202634 15
202649 15 | 0.5
202648 15 | 1
202646 65 | 15
202647 5
171586 216149 10 | 1 | 5 | 0.08
171585 10
171588 10 | 20
171587 20
202633, 216150 10 | 1 | 20
171591 5 | 10
171595 5 | 10
171594
171596 15 | 10 | 15
216141 10 | 20 | 9.3
171590 5
171592 171593 5
202682 10
202681 5
202650 5 | 10
202680 10
202679 5 | 10 | 0.06
171589 5
216142 5 | 0.43
202678 10
202677 15
202676 5
202637 NA | 20 | NA | 20
202640 NA | 40 | NA | 10 | 0.03
202639 20 | NA | 20 | NA | 60 | 0.88
202638 NA | 20 | NA | 10 | 0.12

81-1555
75150
73151
10 3827
38

5 cm

892489

87-2696 Vol 4/4

7301

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As
Zn | Au,AU — Analyses (ppm) / (Gold grade, repeat assay)

\- Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

NA Denotes no analysis

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GRID CONVERGENCE 1.2°
GN TN MN
GRID/MAGNETIC ANGLE 12.5°

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

–80# SAMPLES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 2

REPORT 525 ENCLOSURE 6

7303

83000mE. 84000mE. 85000mE. 86000mE. 87000mE. 88000mE. 89000mE. 90000mE. 390500mE.

54000mN.
53000mN.
52000mN.
51000mN.
50000mN.
49000mN.
48000mN.
52 47000mN.

RIVER
LEWIS
RIVER
LEWIS
HUDSON
E.L. 40 / 85

202675 | - | 5 | 5 | - | 0.5 | 10 | 1 | 15 | - | 202674 | - | - | - | 15 | - | 202630 | - | - | - | 10 | - | 202673 | - | - | - | 10 | - | 202672 | - | - | - | 10 | - | 202629 | - | - | - | 25 | - | 202631 | 10 | - | 20 | - | 202671 | - | - | - | 10 | - | 202670 | 202669 | - | - | - | 10 | 15 | 1 | 30 | 0.06 | 202666 | 202668 | 5 | - | - | - | 10 | 202667 | - | - | - | 202665 | 10 | - | - | - | 25 | 202632 | 5 | - | - | - | 10 | 202025 | 202684 | - | 5 | 1 | 10 | 5 | - | - | - | 15 | 202023 | 202024 | 5 | - | - | - | 15 | 15 | - | 20 | 1 | 20 | 202022 | 10 | - | 20 | 1 | 15 | - | 202021 | 171567 | 171577 | 202019 | 202020 | 171578 | 10 | - | 5 | - | 171580 | 202017 | 171579 | 202018 | 10 | 2 | 10 | 202014 | 10 | 3 | 202015 | 202016 | 202013 | 5 | 3 | - | 3 | 202012 | 15 | 3 | 202009 | - | 4 | 15 | 0.01 | 202010 | - | 7 | 10 | - | 202011 | - | 4 | 5 | 0.02 | 202008 | 0 | 0.5 | - | 4 | 10 | 0.07 | 202007 | 5 | - | - | 10 | 5 | 20 | - | 202006 | - | - | 5 | 10 | 0.05 | 202005 | 5 | 0.5 | 10 | 7 | 15 | - | 202004 | - | - | 5 | 3 | 10 | - | 5 | - | - | 5 | 15 | 0.04 | 202002 | 202003 | 5 | - | - | 5 | 4 | 15 | -

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As
Zn | Au, Au — (Gold grade, repeat assay)

\- Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

NA Denotes no analysis

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN TN MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

5 cm

892491

87-2696 Vol 44 7303

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

–80# SAMPLES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 4

REPORT 525 ENCLOSURE 8

7304

75000mE. 76000mE. 77000mE. 78000mE. 79000mE. 80000mE. 81000mE. 82000mE. 82500mE.

46000mN.
45000mN.
44000mN.
43000mN.
42000mN.
41000mN.
40000mN.
52 39000mN.

SASSY CREEK

VERIDIAN POINT

202945 10 | - | - | 1 | 30 | 0.05

10 | - | - | - | 25 | -

202946

202947 5 | - | - | - | 5 | -

202948 10 | - | - | - | 15 | -

202950 10 | - | - | - | 5 | -

202949 5 | - | - | - | 10 | 1.31, 0.45

LEWIS RIVER

171961 - | - | - | 4 | 10 | -

171952 - | - | - | 0.5 | 15 | 0.42

171951 - | - | - | 0.5 | - | 2 | 10 | 0.01

171953 - | - | - | 0.5 | - | 1 | 20 | -

171963 5 | 0.5 | - | 4 | 10 | 0.9

171962 5 | 0.5 | - | 3 | 15 | 0.1

171954 - | 1 | - | - | 35 | 0.01 | - | 0.5 | - | - | 40 | -

171955 - | 1 | - | - | 25 | -

171964 5 | - | - | 4 | 25 | 0.85

171965 - | 0.5 | - | 4 | 50 | -

171957 - | 0.5 | - | - | 20 | 0.57

171958 - | 1 | - | - | 15 | -

171959

171960 - | 0.5 | - | - | 20 | -

171956 - | - | - | - | 15 | -

202596 5 | - | - | - | - | -

202597 10 | - | - | - | - | 0.07

202586 5 | - | - | - | 5 | 0.19

202585 10 | - | - | - | 10 | -

202595 10 | - | - | - | - | -

202594 - | - | - | - | - | 0.01

202593 10 | - | - | - | - | 0.16

202587 10 | - | - | - | - | -

202588 5 | - | - | - | - | 0.4, 0.95

BLACK ISLAND

202589 10 | - | - | - | - | 0.03

202590 10 | - | - | - | - | 1.07

202591 5 | - | - | - | - | 0.01

202592 10 | - | - | - | - | -

OCEAN

SOUTHERN

ELLIOTT BAY

LOW ROCKY POINT

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As
Zn | Au, Au — Analyses (ppm) (Gold grade, repeat assay)

\- Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

NA Denotes no analysis

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN TN MN

GRID CONVERGENCE 1.2°

GRID/MAGNETIC ANGLE 12.5°

5 cm

892492

87-2696 Vol 44 7304

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

–80# SAMPLES

SCALE 1 : 10000 200 0 200 400 METRES

DRAWN BY :	G.T.
DRAFTSMAN :	T.G.D.S.
DATE :	May '87
REVISIONS :	
FILE No.	
SHEET	5

REPORT 525 ENCLOSURE 9

7305

RIVER
LEWS
CREEK
BARREL
LITTLE
ROCKY
RIVER
E.L. 40 / 85
ELLIOTT
BAY
not plotted.

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As — Analyses (ppm)
Zn | Au, Au — (Gold grade, repeat assay)

– Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

NA Denotes no analysis

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GRID CONVERGENCE 1.2°
GN TN MN
GRID/MAGNETIC ANGLE 12.5°

5 cm

892493

87-2696 Vol 414 7305

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

–80# SAMPLES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 6

REPORT 525 ENCLOSURE 10

7306

MOORES VALLEY AIRSTRIP

not plotted.

171485 | 25 | – | – | 3 | 15 | 0.03

171484 | 5 | 0.5 | – | 3 | 10 | –

171483 | – | 0.5 | 20 | – | 30 | 0.89

171482 | 1 | 0.5 | 5 | 5 | 25 | 0.6

171490 | – | 1 | 25 | 2 | 25 | –

171499 | – | 3.5 | 1 | – | 10 | 1.2

171491 | 5 | 1.0 | 20 | – | 40 | 22

171492 | 15 | 1 | – | – | 30 | 1.08

171493 | – | 14 | 40 | – | 20 | –

171494m | 5 | – | – | 2 | 25 | –

171495 | – | – | – | 1 | 5 | –

171496 | – | 0.5 | – | 1 | 10 | 0.04

171479 | 10 | 1 | – | 5 | 35 | –

171478 | 6 | 1 | – | 8 | 25 | –

202571 | – | – | – | – | 5 | 0.11

171477 | 2 | – | 0.5 | 20 | 3 | – | 25 | 0.5

216110 | – | – | – | 0.39

216111 | – | – | 30 | 1.5

216109 | – | – | 15 | –

E.L. 40 / 85

WANDERER RIVER

RIVER

MAINWARING

75000mE. 76000mE. 77000mE. 78000mE. 79000mE. 80000mE. 81000mE. 82000mE. 382500mE.

62000mN. 61000mN. 60000mN. 59000mN. 58000mN. 57000mN. 56000mN. 52 55000mN.

892494

5 cm

87-2696 Vol 4 7306

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As — Analyses (ppm)
Zn | Au, Au — (Gold grade, repeat assay)

– Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

m indicates mineralogical determination

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN
TN
MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

PANNED CONCENTRATES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 1

REPORT 525

ENCLOSURE 11

7302

E.L. 40 /85

75000mE. 76000mE. 77000mE. 78000mE. 79000mE. 80000mE. 81000mE. 82000mE. 82500mE.

54000mN. 53000mN. 52000mN. 51000mN. 50000mN. 49000mN. 48000mN.

52 39000mN. 52 47000mN.

RIVER

MAINWARING

202800
95 | –
5 | 1
120 | 0.06

202799
45 | –
10 | 5
75 | –

216079
5 | –
– | 1
– | 0.08

216080
10 | –
– | 1
30 | 0.36

202636
– | –
– | 1
5 | –

MT. OSMUND
△ 368m

WART △ 238m
HILL

CREEK

COPPER

CAMP

5 | –
– | 2
15 | –
171455

5 | –
– | 2
10 | –
171454

DIORITE
POINT

216132
10 | –
15 | 5
85 | 2.02

171568
– | –
10 | 4
15 | –

– | –
10 | –
– | 0.84
171570

5 | –
25 | –
35 | 1.97
171569

171567
– | –
5 | 6
30 | –

171566
– | –
15 | 4
20 | –

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As — Analyses (ppm)
Zn | Au, Au — (Gold grade, repeat assay)

– Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

NA Denotes no analysis

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN
TN
MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

5 cm

892490

87-2696 Vol 44

7302

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
STREAM SEDIMENT
GEOCHEMISTRY
–80# SAMPLES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 3

REPORT 525 ENCLOSURE 7

7307

MOORES VALLEY AIRSTRIP

WANDERER RIVER

WOOLOOMOOLOO CREEK

E.L. 40 / 85

202540m 5|0.16
202541 10|0.05
202542m 10|0.04
202609 202610m 202611m 5|10.36
202612 10|-
202613 10|0.06
202607 10|1|15
202608 35|20|1|5.6
216104 5|1.15
216105 20|1|10.67
216106 5|0.3
171633 10|1|0.45
216103 5|0.45
171634 5|1|0.57
171632 10|1|3.5
171631 -|1|130
202621 5|-
202622 5|0.5
5|0.01
202603 15|1|0.32
202604 50|3|0.75
202606 645|6|1
20|5.4
202605 10|1|0.5
171638 25|5|1|0.02
216102,171636 10|4
102.7 5|2.7
171637 15|0.2
171635 5|2.01
202623 25|1.5|1|4.9
216101 25|-|1|1.03
216107 10|1.17
171640 -|0.02
171639 -|0.01
216108 15|14.27
171641 10|1|3.8
171642 -|32.8
171644 -|1.82
171645 -|1|-
171646 -|1|-
171643 -|0.02
202682 -|1|0.6
202602 15|20|-|16.69
202683 15|30|1|30.5
202684 45|1|10|0.59
202685 10|5|1|1.03
202686 20|30|1|36.3
202687 15|-|1|1.5
202688 15|10|1|31.68
202617,202618m 50|20|NS|-|NS|230
202614 70|40|NS|20|NS|0.16
202615 20|NS|-|NS|20|0.002
202616 10|NS|-|NS|0.47
202607 10|1|15
202608 35|20|1|5.6
10|-
202613 10|0.06
202609 202610m 202611m 5|10.36

62000mN. 61000mN. 60000mN. 59000mN. 58000mN. 57000mN. 56000mN. 55000mN.

83000mE. 84000mE. 85000mE. 86000mE. 87000mE. 88000mE. 89000mE. 90000mE. 390500mE.

892495

5 cm

87-2696 Vol 4/4 7307

LEGEND

171437 — Sample No.

Cu|Ag
Pb|As
Zn|Au,AU — Analyses (ppm) — (Gold grade, repeat assay)

– Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

m Indicates mineralogical determination

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN TN MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

PANNED CONCENTRATES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 2

REPORT 525 ENCLOSURE 12

7308

75000mE. 76000mE. 77000mE. 78000mE. 79000mE. 80000mE. 81000mE. 82000mE. 382500mE.

54000mN. 53000mN. 52000mN. 51000mN. 50000mN. 49000mN. 48000mN.

E.L. 40/85

RIVER

MAINWARING

MT. OSMUND
△ 368m

WART HILL △ 238m

CREEK

COPPER

CAMP

DIORITE POINT

202751 | 80 | – | – | 2 | 45 | 2.81

202752 | 55 | – | – | 9 | 75 | 0.03

216098 | – | 3 | – | – | – | 82.56

216097 | – | – | – | 1 | 10 | 0.04

202619 | – | 25 | – | 1 | 10 | 173.3

202620 | – | 3.5 | 5 | – | 20 | 5.27

202544

202543

216117 | 5 | – | 10 | – | 10 | 500.8

171498 | – | 0.5 | 15 | – | 20 | 1.12

171497 | – | 1 | – | 3 | 20 | 4

171617 | – | – | 10 | – | |

171618 | – | – | 10 | – | |

171620 | 5 | 0.5 | 10 | 2 | 20 | 18.3

171619 | – | 1 | 25 | 3 | 35 | 22.27

171615 | – | – | – | 2 | 15 | –

171616 | – | – | 5 | – | 25 | –

52 39000mN. 52 47000mN.

892496

5 cm

87-2696 Vol 4/4 7308

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As — Analyses (ppm)
Zn | Au,Au — (Gold grade, repeat assay)

– Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

m Indicates mineralogical determination

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN
TN MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

PANNED CONCENTRATES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 3

REPORT 525 ENCLOSURE 13

7309

83000mE. 84000mE. 85000mE. 86000mE. 87000mE. 88000mE. 89000mE. 90000mE. 390500mE.

54000mN. 53000mN. 52000mN. 51000mN. 50000mN. 49000mN. 48000mN. 52 47000mN.

RIVER LEWS RIVER HUDSON LEWS RIVER E.L. 40 / 85

202689 | - | - | 1.5 | - | 1 | 5 | 163.3
202690 | - | 1 | 20 | 1 | 15 | 2.62
202691 | - | - | 1 | 20 | 1 | 7.15
202692 | - | - | 1 | 10 | 0.4
202693 | - | - | 1 | 10 | 1.45
202694 | - | 0.5 | - | 1 | 15 | 0.91
202695 | - | - | 1 | 10 | 5.76
202696 | - | 0.5 | 20 | 1 | 15 | 5.17
202697 | - | - | 10 | 1 | 5 | 0.41
202698 | - | - | 20 | 1 | 10 | 2.89
202699 | - | 0.5 | 50 | 1 | 15 | 0.36
202700 | - | 1.5 | - | 1 | 15 | 456.1
202626 | - | - | 15 | 2 | 125 | 2.93
202627 | - | - | 10 | - | 25 | -
202625 | - | - | 80 | 4 | 25 | 2.5
202624 | - | - | 15 | 2 | 75 | -
202026 | - | - | 1 | 10 | 4.5
202027 | - | 1 | 20 | 15 | 4.24
202028 | - | 1.5 | - | - | 10 | 37.7
202029 | - | 2 | - | - | 10 | 88.33
202030 | - | 1 | 30 | 1 | 10 | 6.64
202031 | - | - | 25 | - | 35 | 5.07
202032 | - | 10 | - | - | 20 | 30.5
171625 | - | 5 | 3 | 10 | 0.03
171626 | - | - | 3 | - | - | -
171627 | - | 10 | 3 | 5 | - | -
171649M | - | 5 | - | 15 | 117
171629 | - | - | 10 | 3 | - | -
171647M | - | 0.5 | 10 | 1 | 10 | 8.53
171648M | - | - | 5 | - | 10 | 2.4
171628 | - | - | 3 | - | - | -
171630 | - | 10 | 2 | - | - | -
202033 | - | - | 1 | - | - | 0.15
202034 | - | - | 2 | - | - | 0.57
202035 | - | 5 | 3 | - | - | -
202036 | - | - | 3 | - | - | 0.33
202037 | - | 5 | 3 | - | - | 0.61
202038 | - | - | 3 | - | - | 0.61
202039 | - | - | 10 | 3 | - | 0.04
202040 | - | - | - | - | 25 | 22.6
202041 | - | - | 15 | 1.3
202042 | - | 1.5 | 5 | - | 20 | 35.5
202043 | - | - | - | 15 | 6.1
202044 | - | - | 10 | - | 15 | 1.1
202045 | - | - | 5 | - | 10 | 80.2
202046 | - | 5 | - | - | 20 | 53
202047 | - | 5 | - | - | 15 | 1.1
202048 | - | 5 | - | - | 40 | 5.3
202049 | - | 10 | 0.5 | 30 | - | - | 35 | 14.1

892497

5 cm

87-2696 Vol 4/4 7309

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As — Analyses (ppm)
Zn | Au,Au — (Gold grade, repeat assay)

– Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

m Indicates mineralogical determination

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN TN MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

PANNED CONCENTRATES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 4

REPORT 525 ENCLOSURE 14

7310

75000mE. 76000mE. 77000mE. 78000mE. 79000mE. 80000mE. 81000mE. 82000mE. 82500mE.

46000mN.
45000mN.
44000mN.
43000mN.
42000mN.
41000mN.
40000mN.
39000mN.

SASSY CREEK
VERIDIAN POINT
LEWIS RIVER
OCEAN
SOUTHERN
BLACK ISLAND
LOW ROCKY POINT
ELLIOTT BAY

202923 15 | – / 10 | – / 70 | –
202922 15 | – / 20 | – / 175 | 0.79
202921 10 | – / – | – / 65 | 0.91
202920 5 | – / 5 | – / 45 | –
202918 15 | – / 15 | – / 135 | 1.4,2.6
202919 10 | – / – | – / 100 | 1.53
202573 10 | 3 / – | – / 55 | 0.56,1.35
202572 10 | 3 / – | – / 140 | 41.7
202583 5 | – / – | – / 20 | 4.45,8.4
202582 5 | – / – | – / 25 | 0.05
202574 5 | – / – | – / 5 | 64
202575 5 | – / – | – / 15 | 24.13
202576 5 | 46 / – | – / 25 | 250,365.5
202581 5 | – / – | – / – | –
202580 5 | 5 / – | – / 5 | 45.35,38.6
202579 5 | – / – | – / 5 | 0.43
202578 5 | – / – | – / – | 0.43
202577 10 | – / – | – / 20 | 1.48
171998 – | – / 5 | 2 / 15 | 0.63
171294 5 | – / – | 1 / 10 | 0.01
171293 – | 0.5 / – | 2 / 10 | 0.01
171295 – | 0.5 / – | 2 / 25 | 0.04
171997 30 | – / – | 3 / 75 | 22.6
171996 5 | – / 10 | 4 / 330 | 1.99
171297 – | – / – | 1 / 15 | –
171296 – | 1 / – | 2 / 40 | –
171995 5 | – / 5 | 4 / 165 | 1.16
171994 5 | – / 5 | 4 / 170 | –
171299 – | 1 / – | 6 / 10 | 0.01
171300 – | 0.5 / – | 2 / 10 | –
171200 – | – / – | 2 / 30 | 0.15
171999 – | 0.5 / – | 2 / 5 | –

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As
Zn | Au,Au — Analyses (ppm) (Gold grade, repeat assay)

– Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

m Indicates mineralogical determination

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN TN MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

5 cm

892498

87-2696 Vol 414 7310

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

PANNED CONCENTRATES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 5

REPORT 525 ENCLOSURE 15

7311

83000mE. 84000mE. 85000mE. 86000mE. 87000mE. 88000mE. 89000mE. 90000mE. 90500mE.

46000mN. 45000mN. 44000mN. 43000mN. 42000mN. 41000mN. 40000mN. 39000mN.

RIVER
LEWS
CREEK
BARREL
LITTLE
ROCKY
RIVER
E.L. 40 / 85
ELLIOTT BAY

171610 171613 171614 171608 171609 171612 171611 202147 202146 202148 202149 202326 202327 202325 202324 202150 202199 202198 202145 202537 202144 202539 202142 202141 202143 202535 202533 202529 202527 202525 202531 202523 202516 202521 202514 202140 202197 202196 202518 202512 202194 202195 202510 202328 202329 202332 202331 202333 202335 202334 202339 202338 202337 202336 202139 202138 202137 202136 202330 202500 202502 202504 202506 202508 202498 202496 202176 202178 202180 202174 202127 202128 171603 202129 202130 202134 202135 202133 202132 202126 202125 202123 202122 202121 202120 202119 202118 202124 171601 171602 202113 202115 202116 202117 202107 202108 202105 202106 202104 202103 202102 202101 171607 202109 202110 202111 202112 202340 202341 202172 202170 202168 202166 202164 202344 202343 202342 202345 202346 202347 202348 202349 202350 171476 171276 216116 202001

LEGEND

171437 — Sample No.

Cu | Ag
Pb | As — Analyses (ppm)
Zn | Au,Au — (Gold grade, repeat assay)

– Denotes below analytical detection limit

Detection limits (ppm)
Cu = 5, Pb = 5, Zn = 5, Ag = 0.5,
As = 1.0, Au = 0.008

m Indicates mineralogical determination

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN TN MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

5 cm

892499

7311

87-2696 Vol 414

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

STREAM SEDIMENT GEOCHEMISTRY

PANNED CONCENTRATES

DRAWN BY : G.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 6

REPORT 525

ENCLOSURE 16

7312

MOORES VALLEY AIRSTRIP

E.L. 40 / 85

WANDERER RIVER

RIVER

MAINWARING

75000mE. 76000mE. 77000mE. 78000mE. 79000mE. 80000mE. 81000mE. 82000mE. 382500mE.

62000mN. 61000mN. 60000mN. 59000mN. 58000mN. 57000mN. 56000mN. 52 55000mN.

0.03

0.6 0.69

1.2

70 | –
15 | 10
45 | –
171417

1.0
22

0.13
1.08

171416
145 | –
10 | 12
40 | –

171415
15 | –
15 | 12
10 | –

0.04

NS NS

0.11

0.5

171435
45 | 1
– | 3
150 | –

171436
45 | 0.5
10 | 10
35 | –

0.03
0.39

0.03
1.5

5 cm

892500

87-2696 Vol 414

7312

LEGEND

ROCK CHIP

△ 171437 — Sample No.

Cu | Ag
Pb | As
Zn | Au — Results (ppm)

STREAM SEDIMENT

③ — Visible gold grain count in panned concentrate

– — –80# Au result (ppm)

68 — Panned concentrate Au result (ppm)

NS — No Sample

– — Below level of detection

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN
TN
MN

GRID CONVERGENCE 1.2°

GRID/MAGNETIC ANGLE 12.5°

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

GOLD GEOCHEMISTRY

COMPILATION

STREAM SEDIMENTS & ROCK CHIPS

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 1

REPORT 525

ENCLOSURE 17

7313

MOORES VALLEY AIRSTRIP

WANDERER RIVER

WOOLOOMOOLOO CREEK

E.L. 40 / 85

83000mE. 84000mE. 85000mE. 86000mE. 87000mE. 88000mE. 89000mE. 90000mE. 390500mE.

62000mN. 61000mN. 60000mN. 59000mN. 58000mN. 57000mN. 56000mN. 52 55000mN.

	Cu	Pb	Zn	Ag	As	Au
171441	–	140	345	–	150	–
171442	–	–	20	–	2	–
171443	301	270	45	–	84	–
171444	45	310	395	–	35	0.025
171447	45	185	56	2	–	0.03
171448	15	455	500	–	12	–
171449	80	115	160	3.5	55	0.03

LEGEND

ROCK CHIP

△ 171437 — Sample No.

Cu | Ag
Pb | As
Zn | Au — Results (ppm)

STREAM SEDIMENT

② — Visible gold grain count in panned concentrate

– — –80# Au result (ppm)

68 — Panned concentrate Au result (ppm)

NS — No Sample

– — Below level of detection

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN
TN
MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

892501

5 cm

7313

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

GOLD GEOCHEMISTRY

COMPILATION

STREAM SEDIMENTS & ROCK CHIPS

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 2

REPORT 525

ENCLOSURE 18

7314

75000mE. 76000mE. 77000mE. 78000mE. 79000mE. 80000mE. 81000mE. 82000mE. 382500mE.

54000mN. 53000mN. 52000mN. 51000mN. 50000mN. 49000mN. 48000mN. 47 5238000mN. 5247000mN.

E.L. 40 /85

RIVER

MAINWARING

90 | 0.5
10 | 29
70 | –
171988
35 | –
5 | 26
65 | –
171991
171990
171989
40 | 0.5
30 | 30
45 | –
35 | –
– | 64
120 | –
③ 0.06 2.61
① 0.03

MT. OSMUND
△ 368m

25 0.08 82,56
② 0.36 0.04

NS 5.27 ①
171977 10 | 0.5
5 | 5
25 | –
171978/79
5 | – 10 | –
– | 1 360 | 1
15 | – 720 | –
20 173.3
216099/100
1600 | 52 2500 | 43
1575 | 7400 215 | 86
545 | 0.015 190 | 0.045

WART HILL △ 238m

202943
–
30
202944
5
15
② 1.72
③ 4

CREEK

COPPER

180543 △
825 | 17
2200 | 1100
435 | 0.04

CAMP

Cu Pb Zn Ag As Au
180586 25 – 235 – 1 –
180587 20 – – – – –
180588 15 – 5 – – 0.02
180589 30 – – – 1 0.07
180590 20 7 10 – – –

171993 △
65 | –
100 | –
10 | –
△ 171992
20 | –
145 | –
120 | –
171597/98 △ 171650
50 | –
5 | –
10 | –
25 | –
– | 75 | –
– | 15 | –
5 | – 10 | –
171599 △
35 | –
– | –
5 | –
25 2.02 500.8

1450 | –
25 | 14
75 | 0.055
202570 △
DIORITE POINT
⑤ NS –
240 | –
– | 8
65 | –
202569 △
202568 △
2.1% | –
– | 1
– | 4
70 | –
65 | –
10 | 31
100 | –
180549 △
180550 △
15 | –
– | 42
130 | – 45 | –
180551 △
– | 16
5 | –

90 | – 115 | –
25 | 3 10 | 8
90 | – 75 | –
180537/38 △
180540/42 △
202565
35 | –
– | 34
50 | –
180539
20 | –
20 | –
5 | –
40 | –
– | 0.5 10 | – 170 | 0.5
– | – 10 | – 25 | 3
10 | – 20 | – 15 | 0.025

0.84
18.3
△ 180586/90
③ ⑨ 1.97 22.27
180583 △ ③ –
180584 △ ③ NS –
③ –
⑤ –

892502

5 cm

87-2696 Vol 44 7314

LEGEND

ROCK CHIP
△ 171437 — Sample No.
Cu | Ag
Pb | As
Zn | Au — Results (ppm)

STREAM SEDIMENT
② — Visible gold grain count in panned concentrate
– — –80# Au result (ppm)
68 — Panned concentrate Au result (ppm)
NS — No Sample
– — Below level of detection

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GRID CONVERGENCE 1.2°
GN TN MN
GRID/MAGNETIC ANGLE 12.5°

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

GOLD GEOCHEMISTRY COMPILATION

STREAM SEDIMENTS & ROCK CHIPS

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 3

REPORT 525 ENCLOSURE 19

7315

83000mE. 84000mE. 85000mE. 86000mE. 87000mE. 88000mE. 89000mE. 90000mE. 390500mE.

54000mN.
53000mN.
52000mN.
51000mN.
50000mN.
49000mN.
48000mN.
52 47000mN.

RIVER
LEWS
RIVER
LEWS
HUDSON
E.L. 40 / 85

163.3
2.26
7.15
2.93
0.4
2.5
202756/57
45 | – 50 | –
30 | –436 | 11
45 | –670 | –
5.76
0.41
0.06
2.89
5.17
0.91
1.45
0.36
4.5
171439
5 | –
25 | 310
275 | –
456.1
37.7
4.24
89.33
6.64
0.03
30.5
5.07
NS
1.17
NS
2.4
NS
8.53
202426
10 | –
5 | 71
25 | 0.04
0.57
0.15
171438
50 | –
5 | 3
10 | –
0.81
0.33
0.6
0.04
0.01
35.5
0.02
22.6
13
0.07
6.1
171437
1.1
10 | 0.5
40 | 5
50 | –
0.05
60.2
53
0.04
14.1
5.3

5 cm

892503

7315

87-2696 Vol 4/4

LEGEND

ROCK CHIP

△ 171437 — Sample No.

Cu | Ag
Pb | As — Results (ppm)
Zn | Au

STREAM SEDIMENT

② — Visible gold grain count in panned concentrate
– — —80# Au result (ppm)
68 — Panned concentrate Au result (ppm)
NS — No Sample
-- — Below level of detection

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GN
TN
MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 12.5°

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

GOLD GEOCHEMISTRY

COMPILATION

STREAM SEDIMENTS & ROCK CHIPS

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 4

REPORT 525

ENCLOSURE 20

7316

75000mE. 76000mE. 77000mE. 78000mE. 79000mE. 80000mE. 81000mE. 82000mE. 382500mE.

46000mN.

45000mN.

44000mN.

43000mN.

42000mN.

41000mN.

40000mN.

52 39000mN.

SASSY CREEK

LEWIS RIVER

VERIDIAN POINT

BLACK ISLAND

LOW ROCKY POINT

OCEAN

SOUTHERN

ELLIOTT BAY

	Cu	Pb	Zn	Ag	As	Au
171283	1950	10	505	–	94	0.065
171284	2.65%	220	940	27	450	0.675
171285	9350	310	1800	20	550	0.2
171286	435	70	630	1.5	31	0.02
171287	590	–	160	2.5	6	–
202716	10	–	10	–	1	–
202717	540	–	10	–	1	–
202718	15	–	10	–	1	–
202719	25	–	5	–	–	–
202720	15	–	10	–	1	–
202721	10	–	15	–	–	–
202722	15	–	35	–	1	–
202723	10	–	35	–	7	–
202724	10	–	15	–	–	–
202725	25	–	40	–	–	–
202726	40	–	40	–	2	–
202727	10	–	60	–	1	–
202728	15	–	110	–	3	–
202729	7500	245	3100	7.0	71	0.03
202730	35	–	65	–	6	–
202731	15	20	50	–	4	–
202732	30	25	50	–	7	–
202733	20	–	55	–	1	–
202734	550	–	110	–	7	–
202735	80	70	185	–	8	0.005
202736	50	–	55	–	1	–
202737	1400	15	90	–	16	0.01
202738	135	–	10	–	1	–
202739	770	–	40	–	58	0.01
202740	240	–	40	–	9	–
202741	8400	75	90	3.0	16	0.01

2m Strip Samples

	Cu	Pb	Zn	Ag	As	Au
171980	90	505	610	–	37	0.15
171981	910	675	60	21	25	7.25
171982	1150	395	30	14	21	0.77
171983	30	5	15	–	8	–
171984	20	15	60	–	7	–
171985	20	5	130	–	6	–
171986	45	50	85	–	4	–
171987	15	95	155	–	3	–
216391	590	3700	125	57	–	0.59
216392	220	255	40	1	–	0.07
216393	530	455	60	1	6	0.85
216394	40	–	50	–	–	0.05
216395	125	60	20	–	–	0.04
216396	10	–	5	–	–	0.01
216397	5	–	15	–	–	0.01
216398	280	135	10	28	19	1.81

LEGEND

ROCK CHIP

△ 171437 — Sample No.

Cu | Ag
Pb | As
Zn | Au — Results (ppm)

STREAM SEDIMENT

② — Visible gold grain count in panned concentrate

– — –80# Au result (ppm)

68 — Panned concentrate Au result (ppm)

NS — No Sample

– — Below level of detection

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GRID CONVERGENCE 1.2°

GRID/MAGNETIC ANGLE 12.5°

5 cm

892504

7316

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

GOLD GEOCHEMISTRY

COMPILATION

STREAM SEDIMENTS & ROCK CHIPS

DRAWN BY : R.H.

DRAFTSMAN : T.G.D.S.

DATE : May '87

REVISIONS :

FILE No.

SCALE 1 : 10000 200 0 200 400 METRES

SHEET 5

REPORT 525

ENCLOSURE 21

7317

Refer to North Lewis 1:2500 map

	Cu	Pb	Zn	Ag	As	Au
180568	5	–	30	–	7	–
180569	1650	70	145	–	800	0.05
180570	2.04%	200	475	24	250	0.33
180571	2150	235	170	7	410	0.22
180572	3100	1750	325	20	2400	0.45
180573	1000	285	405	1.5	600	0.03
180574	1300	360	300	0.5	190	0.03
180576	2250	805	525	9.5	1300	0.07
180577	6900	955	650	180	1300	0.05
180578	6750	850	510	6.5	1500	0.05
180580	175	355	130	27.5	2800	–
180582	40	15	135	–	51	–
171281	1100	45	95	4	150	0.02

LEWS RIVER

LITTLE ROCKY RIVER

BARREL CREEK

ELLIOTT BAY

E.L. 40 / 85

46000mN. 45000mN. 44000mN. 43000mN. 42000mN. 41000mN. 40000mN. 52 39000mN.

83000mE. 84000mE. 85000mE. 86000mE. 87000mE. 88000mE. 89000mE. 90000mE. 390500mE.

LEGEND

ROCK CHIP

△ 171437 — Sample No.

Cu | Ag
Pb | As
Zn | Au — Results (ppm)

STREAM SEDIMENT

② — Visible gold grain count in panned concentrate

– — –80# Au result (ppm)

88 — Panned concentrate Au result (ppm)

NS — No Sample

– — Below level of detection

SHEET LOCATION

SHEET 1	SHEET 2
SHEET 3	SHEET 4
SHEET 5	SHEET 6

GRID CONVERGENCE 1.2° — GN TN MN — GRID/MAGNETIC ANGLE 12.5°

5 cm

892505

7317

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

GOLD GEOCHEMISTRY

COMPILATION

STREAM SEDIMENTS & ROCK CHIPS

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 10000 — 200 0 200 400 METRES

SHEET 6

REPORT 525

ENCLOSURE 22

WANDERER SOUTH

PYTHON PIT

MOORES VALLEY AIRSTRIP

WANDERER RIVER

NORTH PORPHYRY CONTACT

PORPHYRY DOLERITE CONTACT

WOOLOOMOOLOO CREEK

MAINWARING RIVER

MT. OSMUND WEST

MT. OSMUND ▲368m

MT. OSMUND EAST

WART HILL GRID

WART HILL ▲238m

NORTH WATERLOO CREEK

WATERLOO CREEK PROSPECT

WATERLOO CREEK GRID

NORTH LEWIS GRID

LEWIS RIVER PROSPECT

LEWIS RIVER GRID

DIORITE POINT

VERIDIAN POINT

PENDERS PROSPECT

BLACK ISLAND

DRAKE CREEK PROSPECT

LOW ROCKY POINT

E.L. 40 / 85

SOUTHERN OCEAN

ELLIOTT BAY

LEGEND

PROSPECT NAME — WATERLOO CREEK (14) — DIGHEM ANOMALY NUMBER (Mitre Geophysics Report 1986)

8700E / LINE 5100 / 8100E — TRAVERSE LINE NO. & COORDINATES

DIGHEM ANOMALY AXIS

V25 — VOYAGER 12 (GEOPEKO PROSPECT LOCALITIES)

PENDERS PROSPECT — OLD WORKINGS

5 — MAGNETIC ANOMALY NUMBER

MAGNETIC ANOMALY AXIS

GRID CONVERGENCE 1.2° (GN / TN)

GRID/MAGNETIC ANGLE 12.5° (MN)

5 cm

892506
87-2696 Vol 4/4
7318

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

PROSPECT LOCALITY PLAN

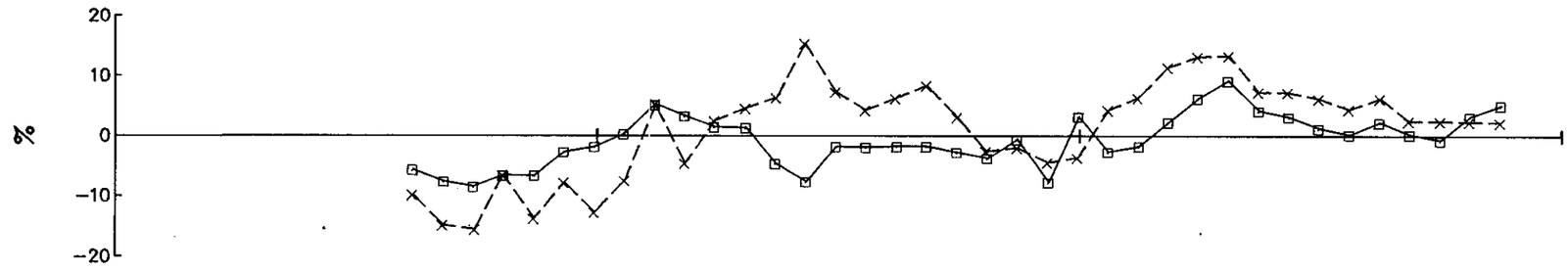
DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : 9-4-'87
REVISIONS :
FILE No.

SCALE 1 : 25000 (500 0 500 1000 METRES)

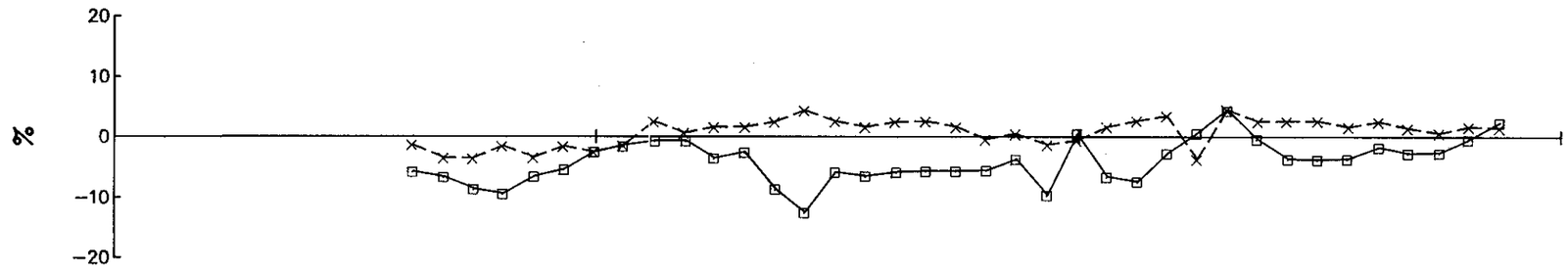
FIG.

REPORT 525

ENCLOSURE 23



3555 Hz



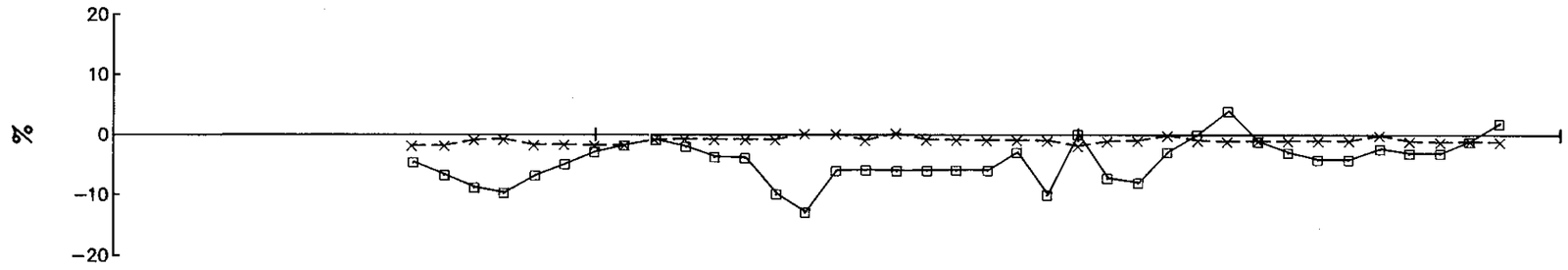
888 Hz

MAX − MIN

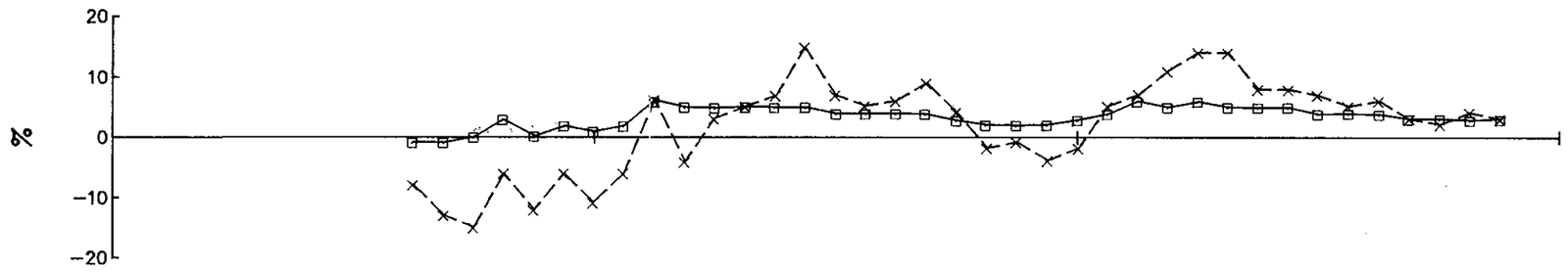
Tx ⟶ Rx = 100m

IN PHASE ▫——▫

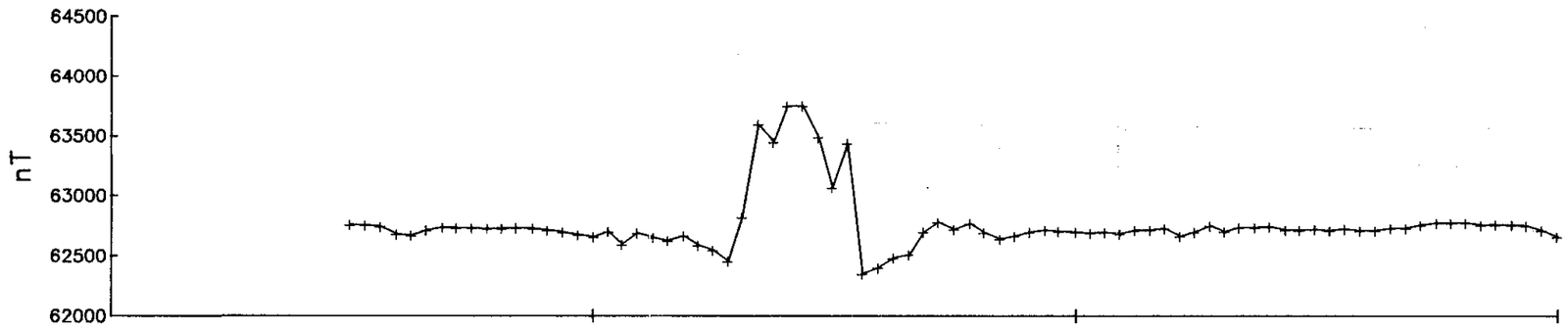
OUT OF PHASE ×– – –×



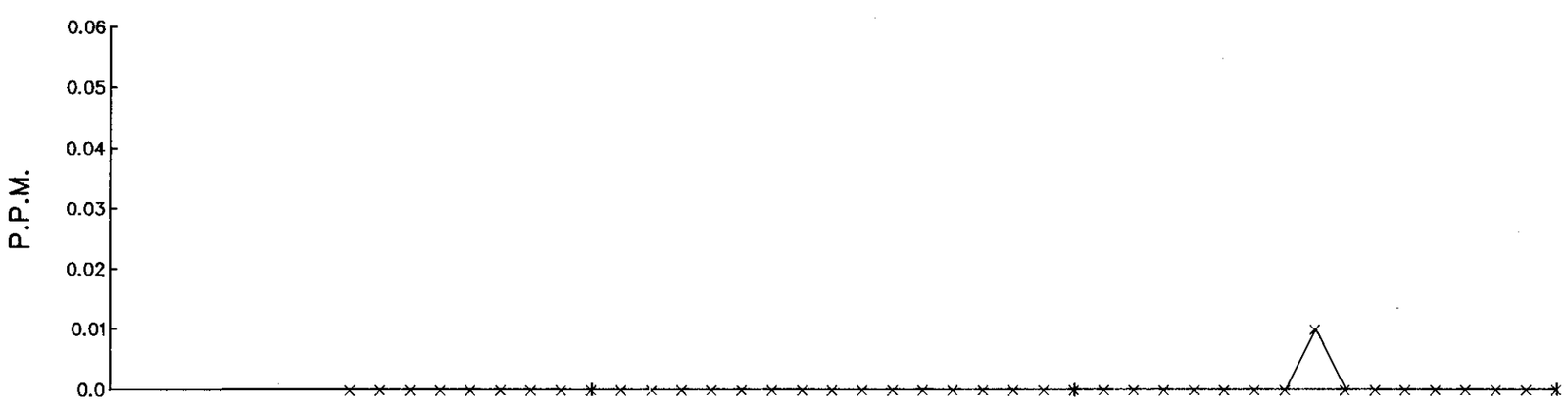
222 Hz



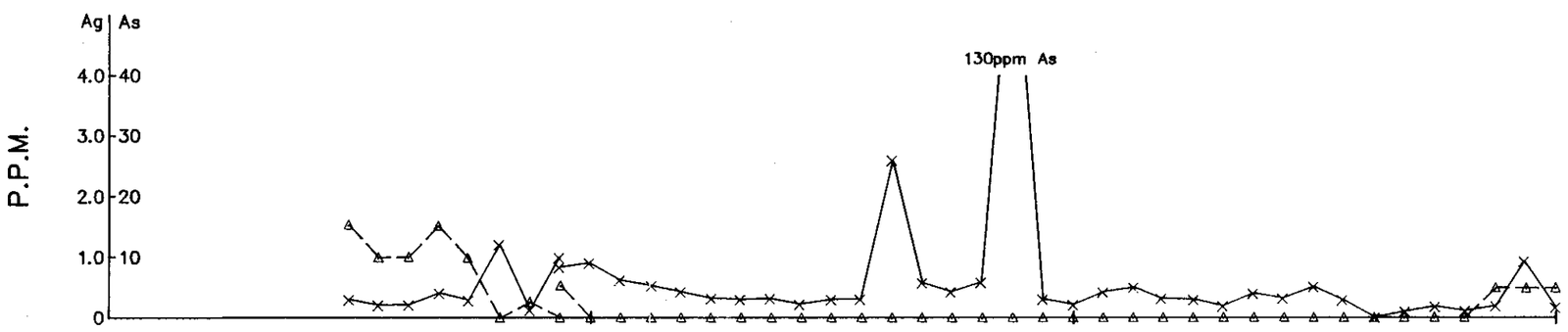
3555 Hz −222 Hz



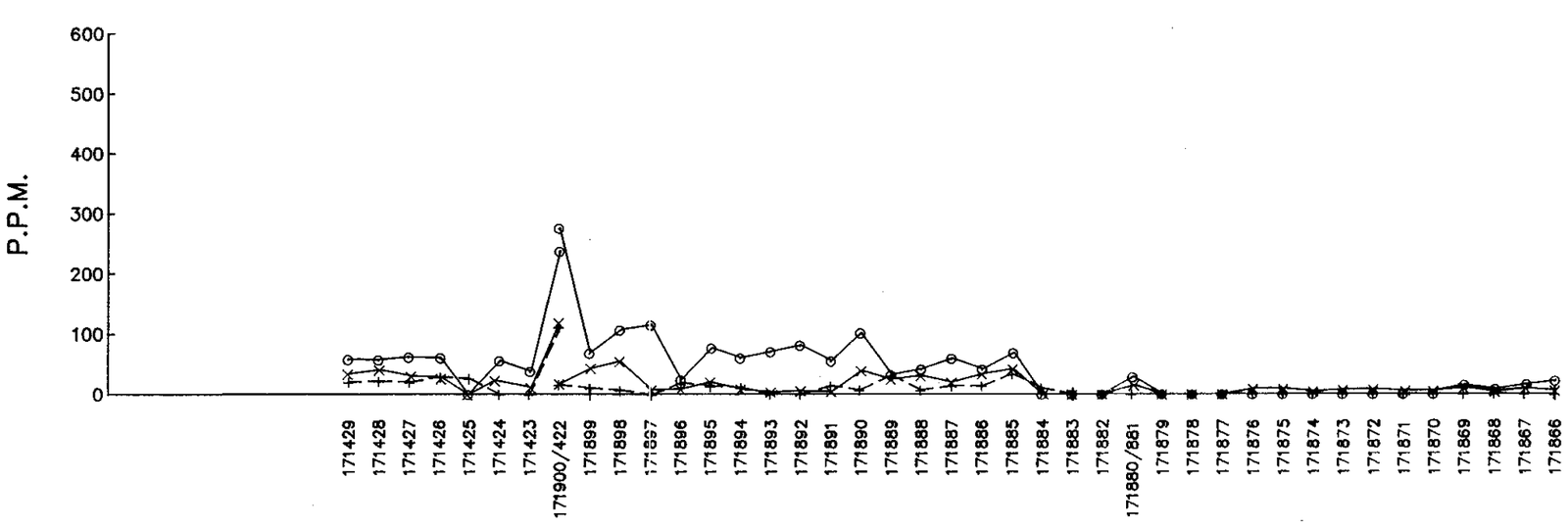
MAGNETICS



Au



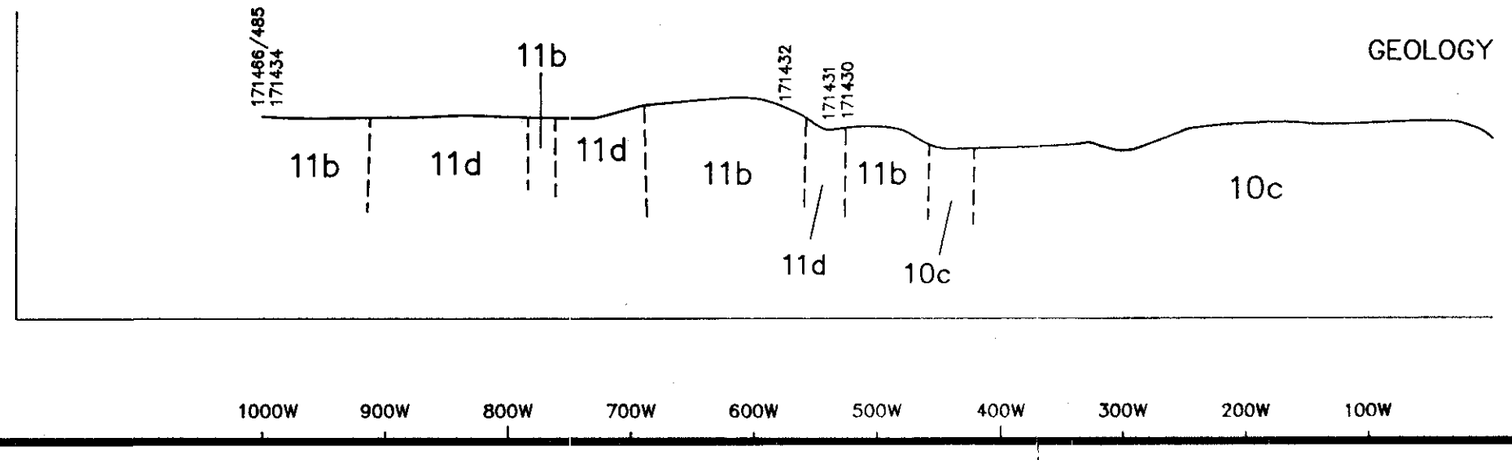
As ×
Ag △



Cu ×
Pb +
Zn ⊙

SOIL SAMPLE NUMBERS 892507

5 cm



7319

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WANDERER SOUTH
LINE 5
PROFILES

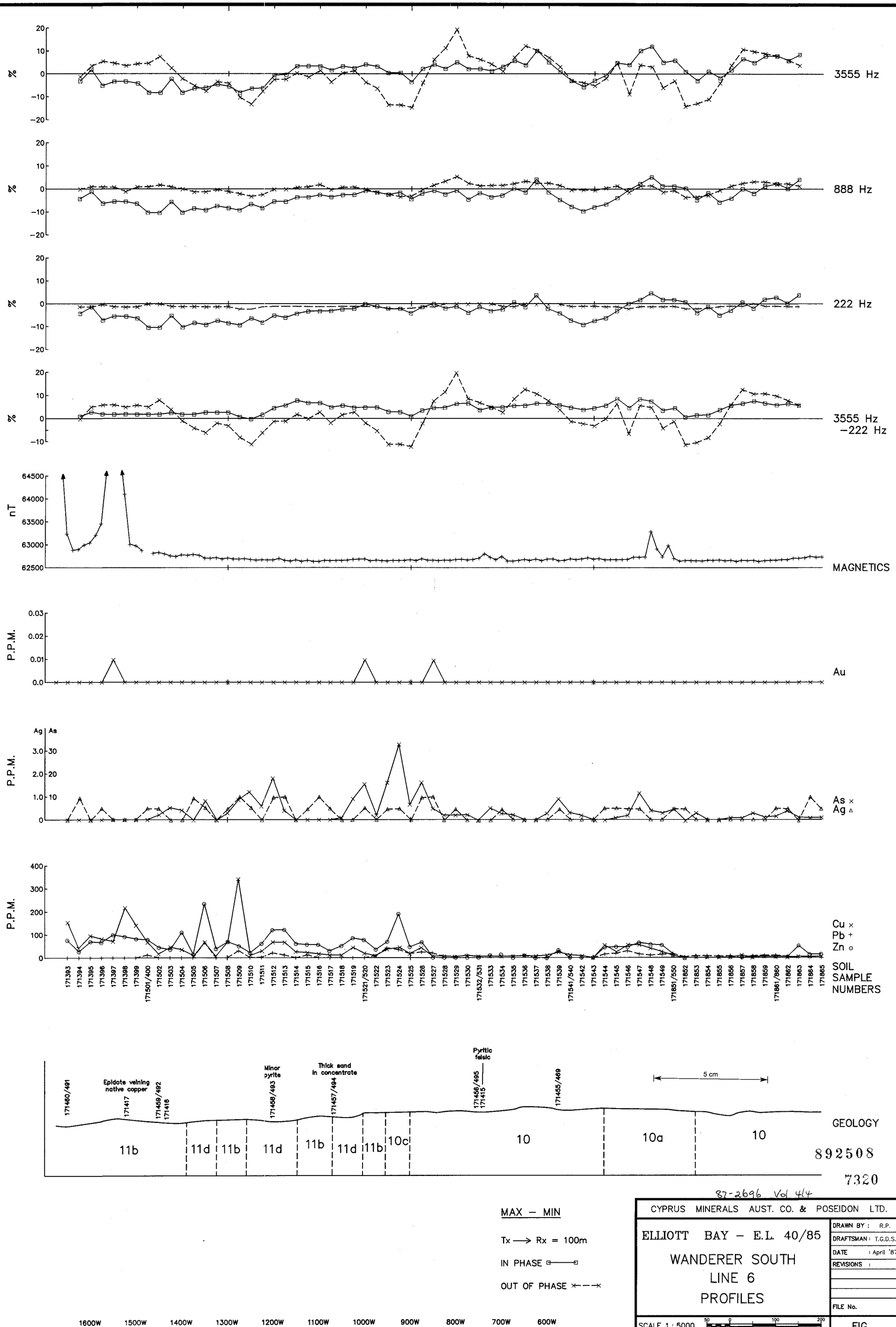
DRAWN BY : R.P.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

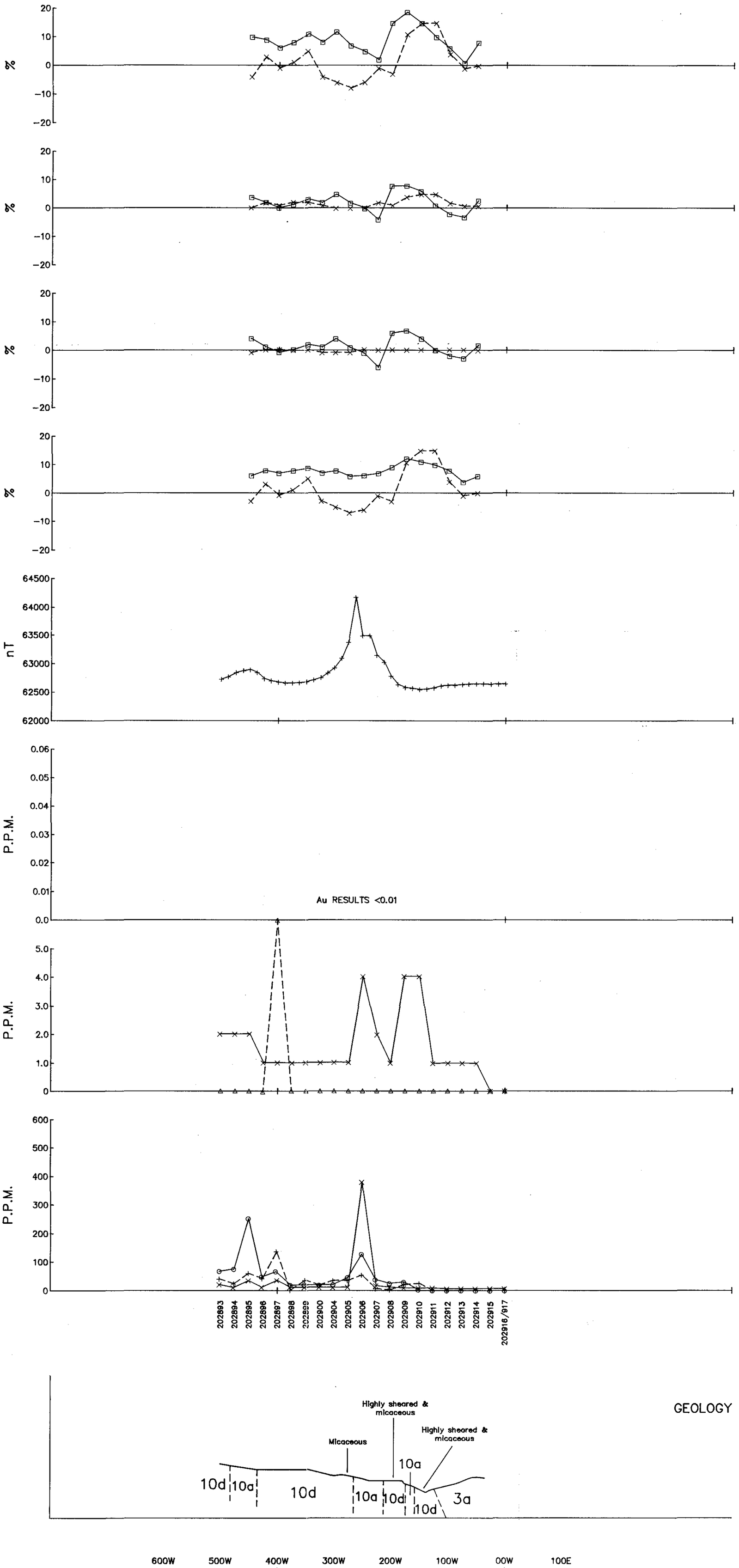
SCALE 1 : 5000 (50 0 100 200 METRES)

FIG.

REPORT 525

ENCLOSURE 24


%
20
10
0
−10
−20
3555 Hz
888 Hz
222 Hz
3555 Hz
−222 Hz
nT
64500
64000
63500
63000
62500
MAGNETICS
P.P.M.
0.03
0.02
0.01
0.0
Au
Ag
As
3.0
2.0
1.0
30
20
10
As ×
Ag △
400
300
200
100
0
Cu ×
Pb +
Zn ○
SOIL SAMPLE NUMBERS
171393
171394
171395
171396
171397
171398
171399
171501/400
171502
171503
171504
171505
171506
171507
171508
171509
171510
171511
171512
171513
171514
171515
171516
171517
171518
171519
171521/520
171522
171523
171524
171525
171528
171527
171528
171529
171530
171532/531
171533
171534
171535
171536
171537
171538
171539
171541/540
171542
171543
171544
171545
171546
171547
171548
171549
171851/550
171852
171853
171854
171855
171856
171857
171858
171859
171861/860
171862
171863
171864
171865
Epidote veining native copper
Minor pyrite
Thick sand in concentrate
Pyritic felsic
171460/491
171417
171459/492
171416
171458/493
171457/494
171456/495
171415
171455/489
5 cm
11b
11d
11b
11d
11b
11d
11b
10c
10
10a
10
GEOLOGY
892508
7320
87-2696 Vol 4/4
MAX − MIN
Tx ⟶ Rx = 100m
IN PHASE
OUT OF PHASE
1600W
1500W
1400W
1300W
1200W
1100W
1000W
900W
800W
700W
600W
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.
ELLIOTT BAY − E.L. 40/85
WANDERER SOUTH
LINE 6
PROFILES
DRAWN BY : R.P.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.
SCALE 1 : 5000
50 0 100 200
METRES
FIG.



MAX − MIN

Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

OUT OF PHASE ×– –×

7321

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

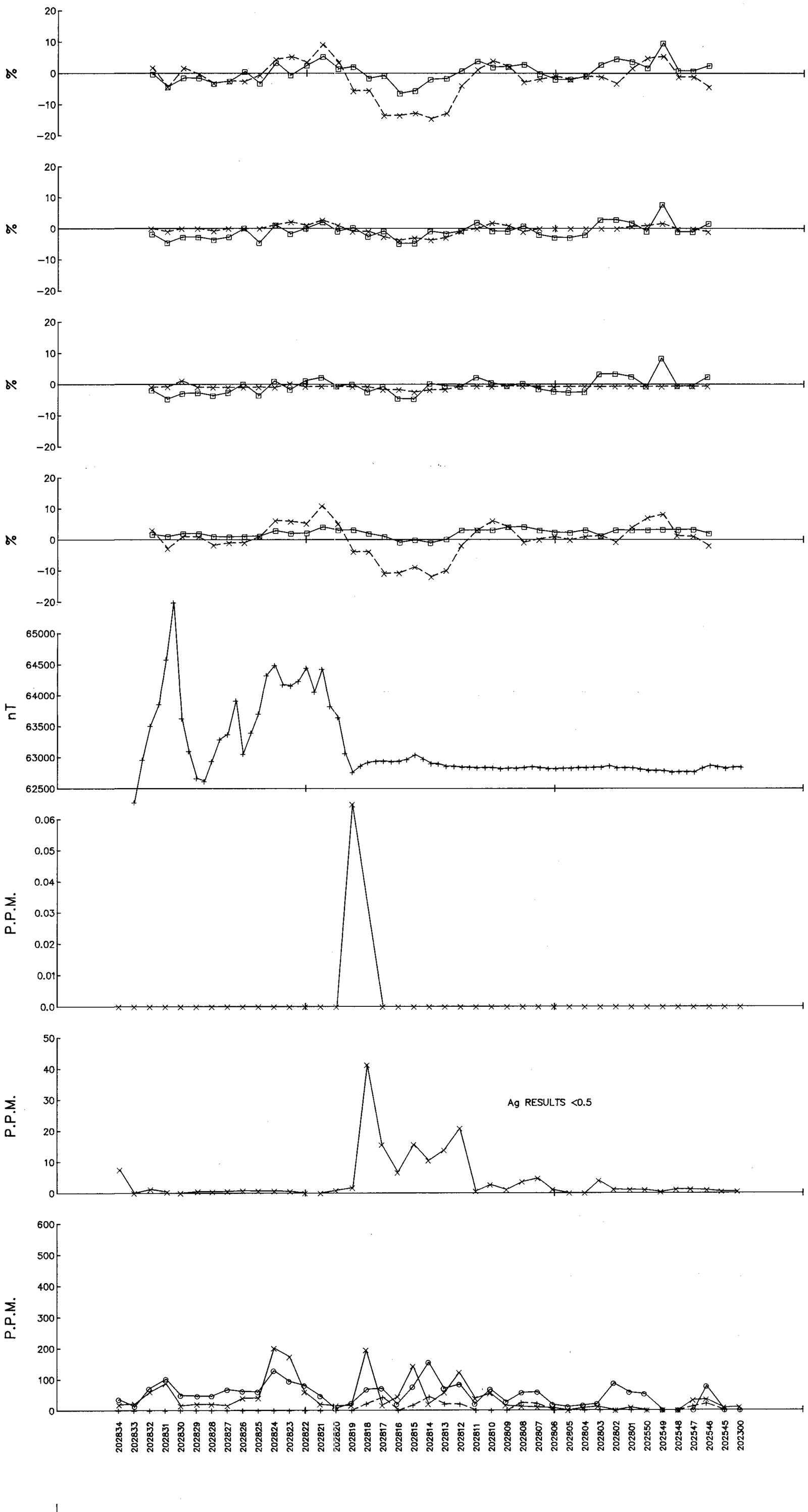
ELLIOTT BAY – E.L. 40/85

WANDERER SOUTH
LINE 7
PROFILES

DRAWN BY : R.P.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 5000 (50 0 100 200 METRES)

FIG.



MAX — MIN

Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

OUT OF PHASE ×– –×

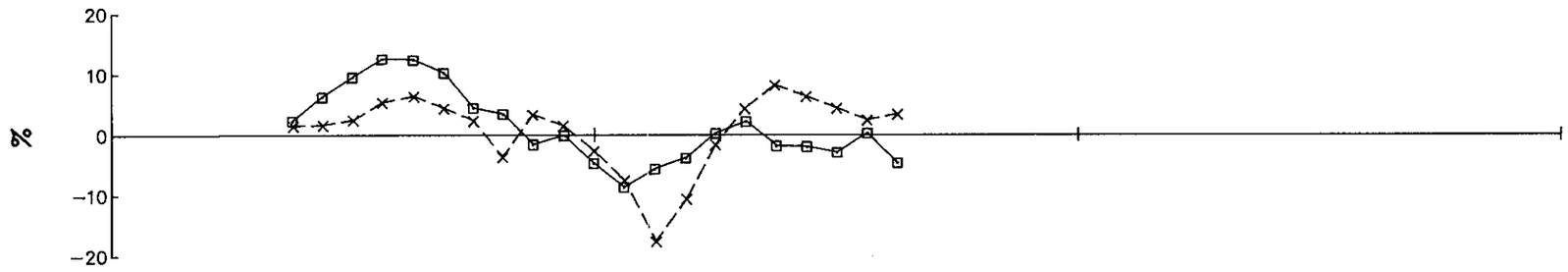
87-2696 Vol 4/4

7322

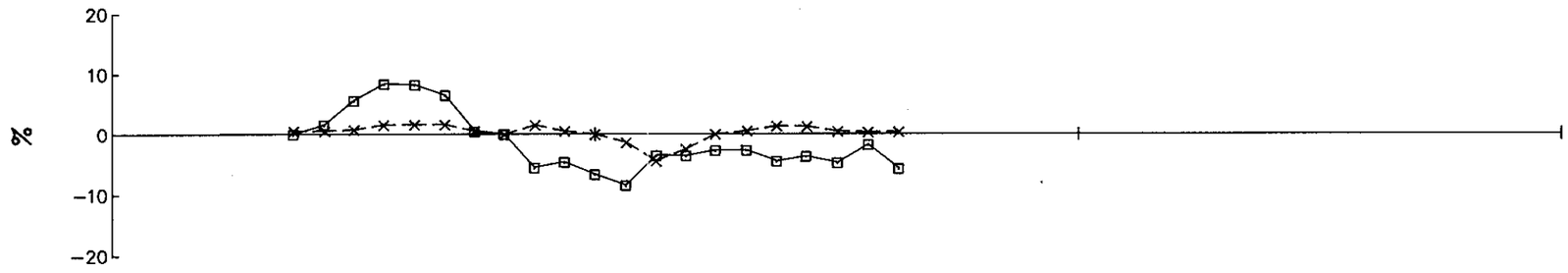
CYPRUS MINERALS AUST. CO. & POSEIDON LTD.	
ELLIOTT BAY — E.L. 40/85 PYTHON PIT LINE 23 PROFILES	DRAWN BY : C.T. DRAFTSMAN : T.G.D.S. DATE : April '87 REVISIONS : FILE No.
SCALE 1 : 5000 (50 0 100 200 METRES)	FIG.

REPORT 525

ENCLOSURE 27



3555 Hz



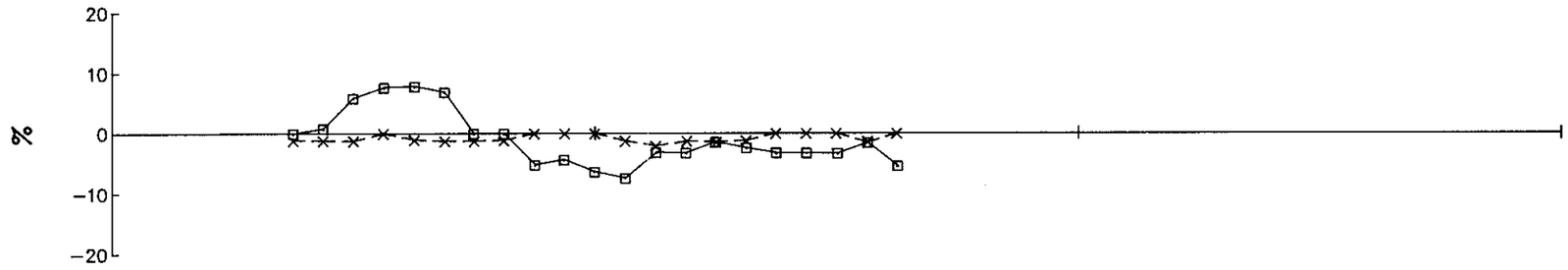
888 Hz

MAX − MIN

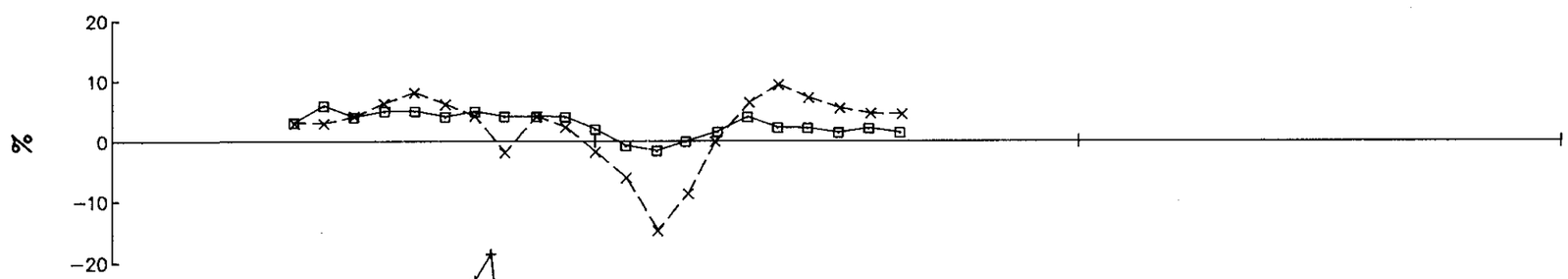
Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

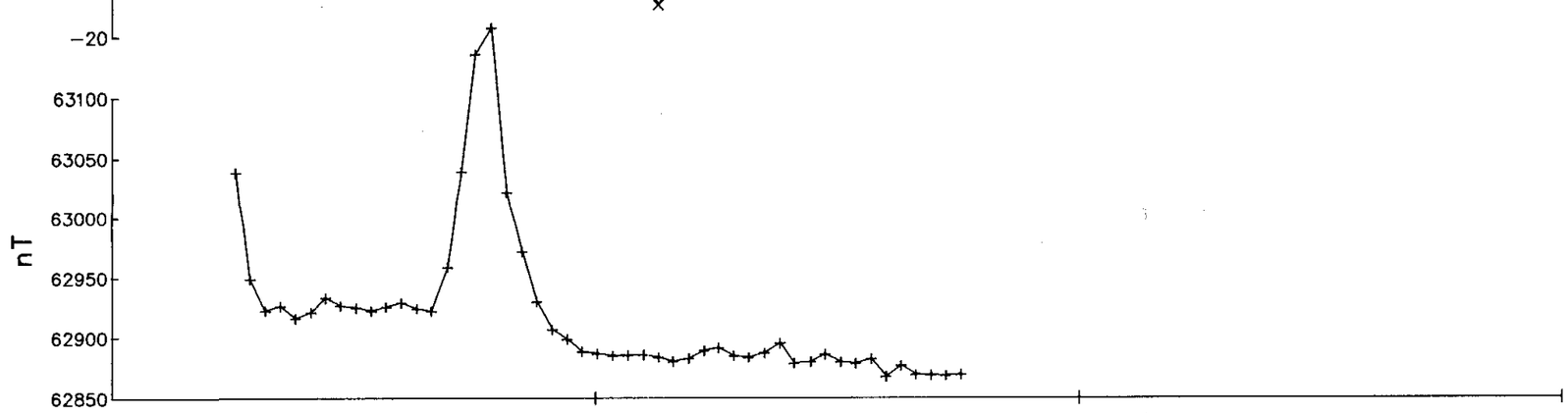
OUT OF PHASE ×– – –×



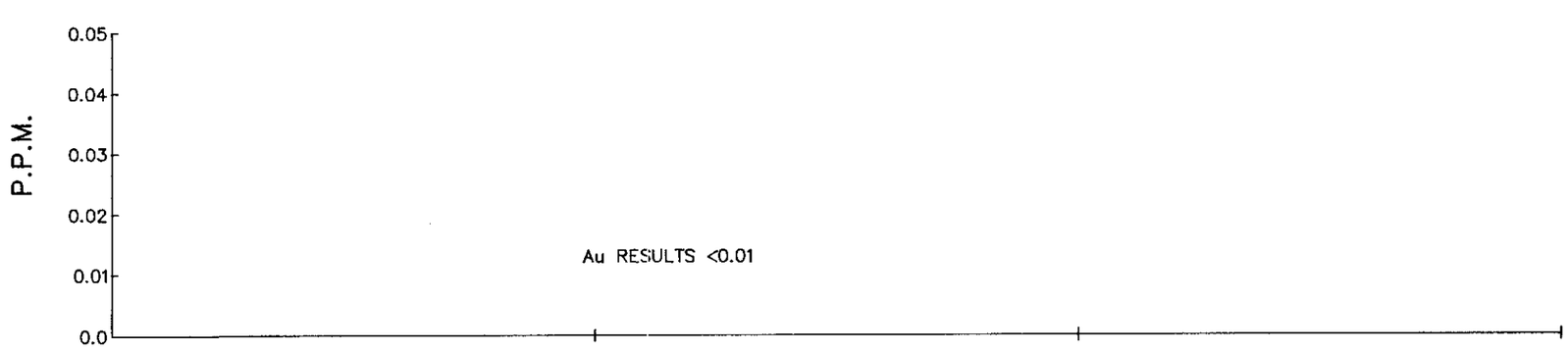
222 Hz



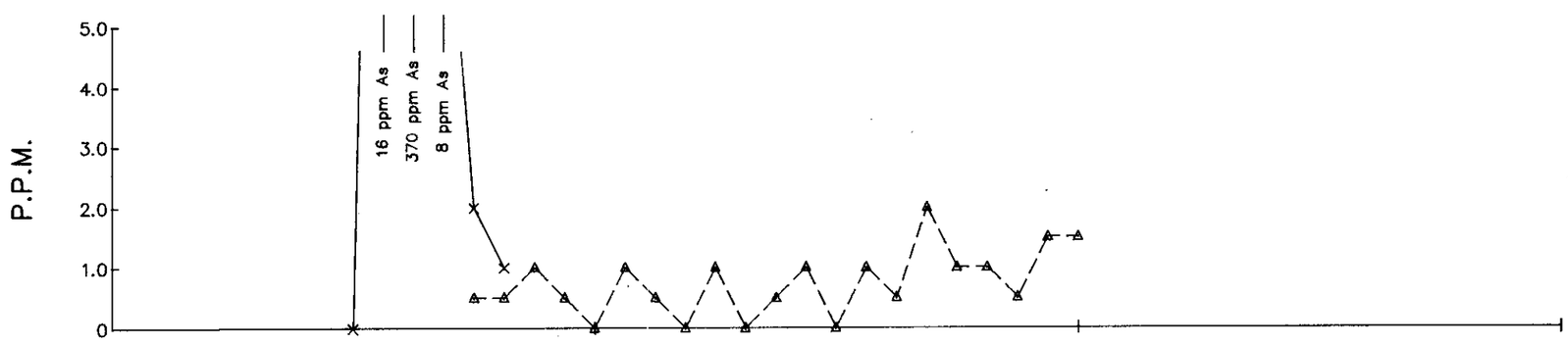
3555 Hz −222 Hz



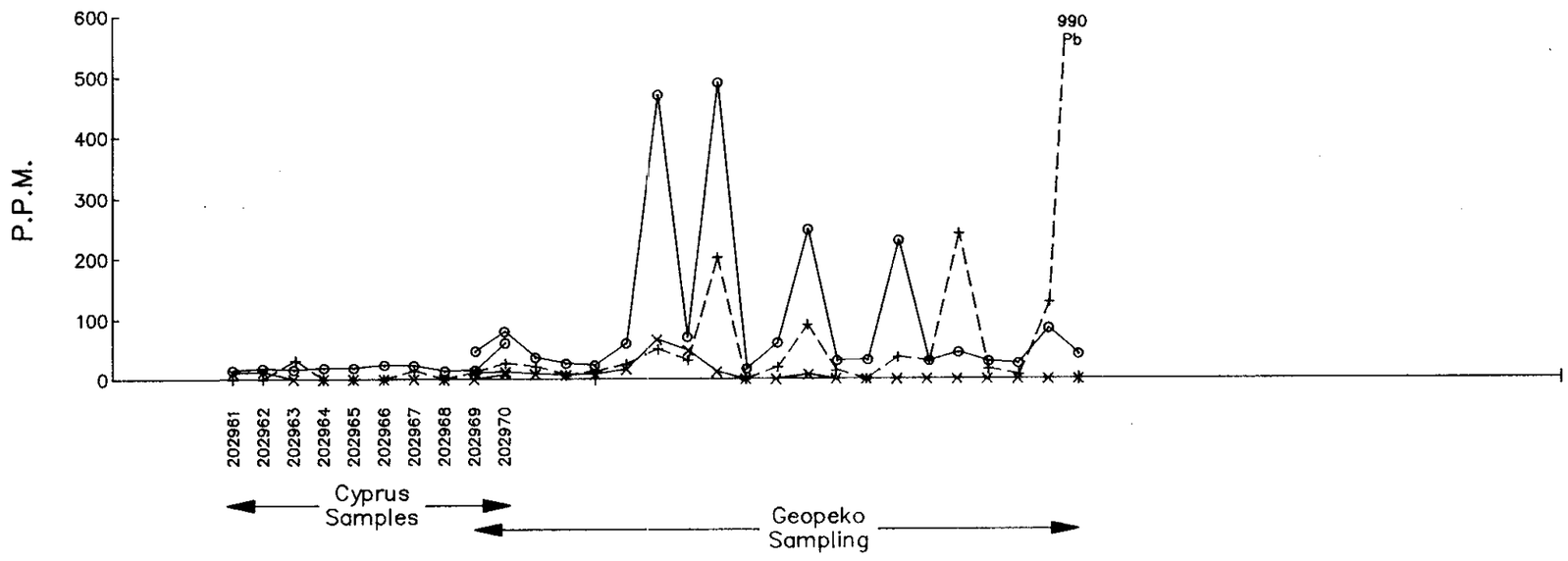
MAGNETICS



Au



As ×
Ag △

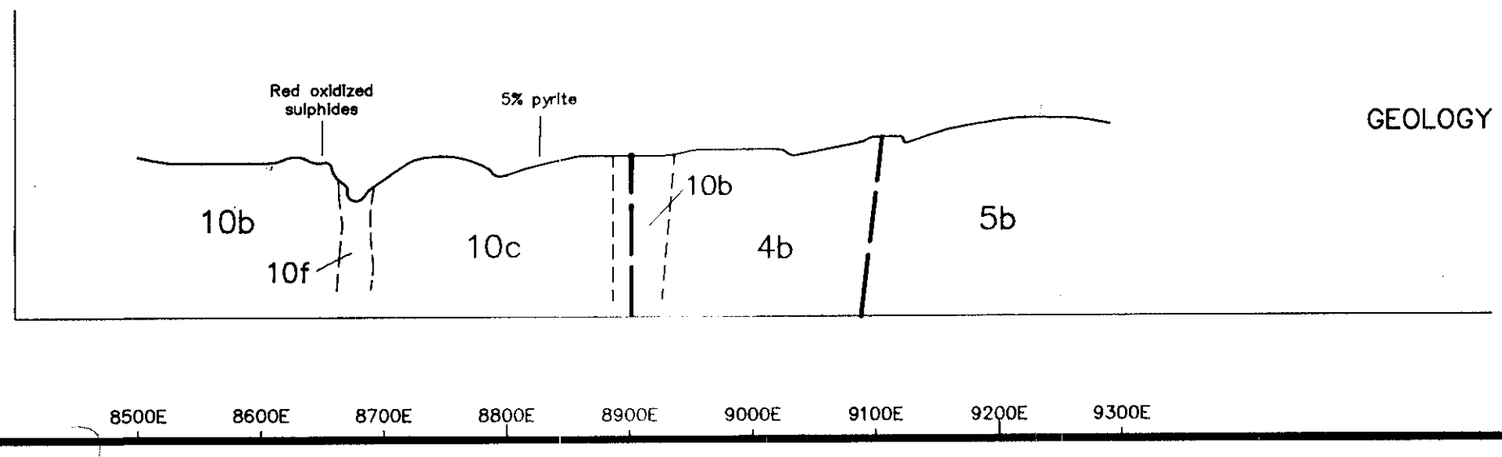


Cu ×
Pb +
Zn ⊙

SOIL SAMPLE NUMBERS 892511

5 cm

7323



GEOLOGY

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

MT. OSMUND WEST
LINE 14200N
PROFILES

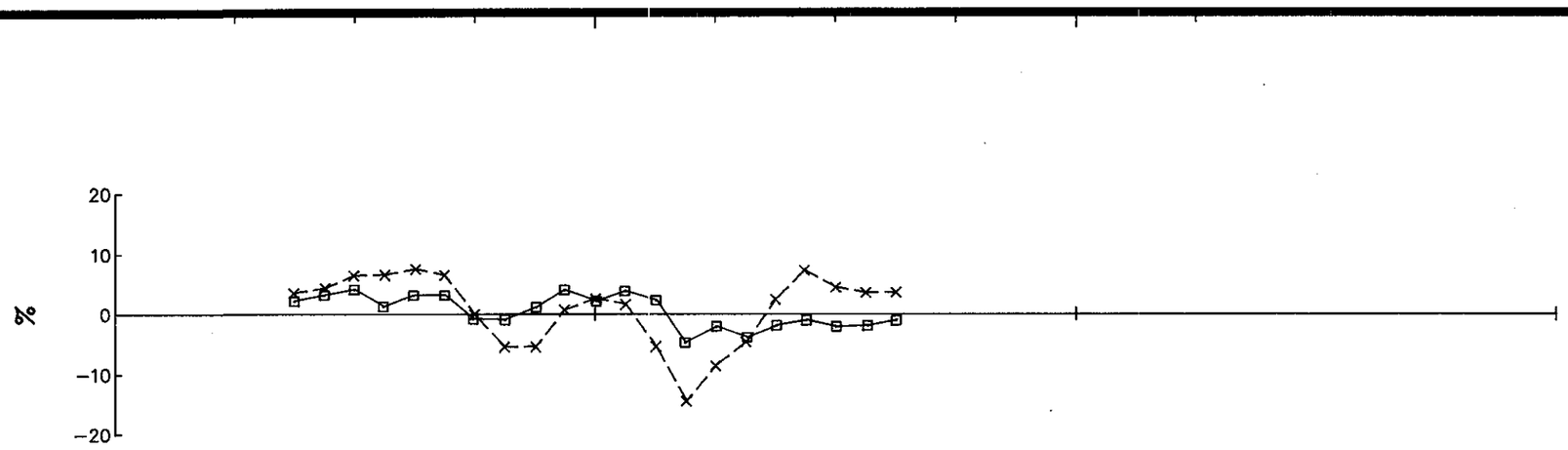
DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

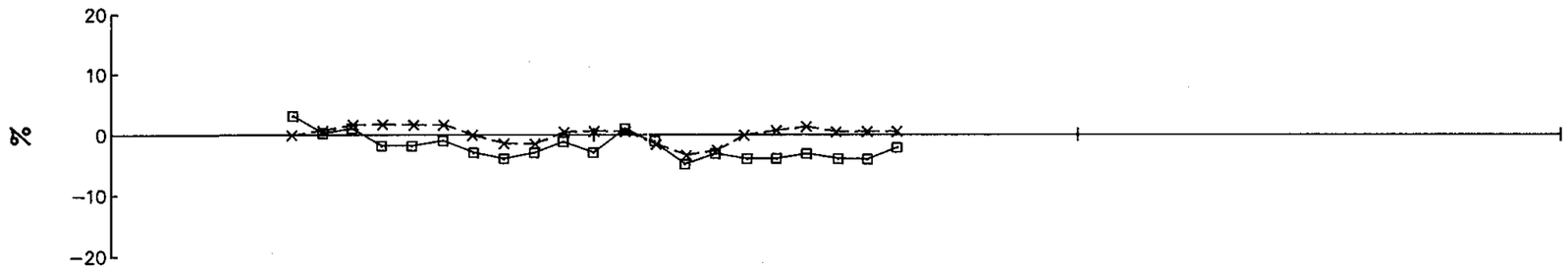
SCALE 1 : 5000 50 0 100 200 METRES

FIG.

REPORT 526

ENCLOSURE 28



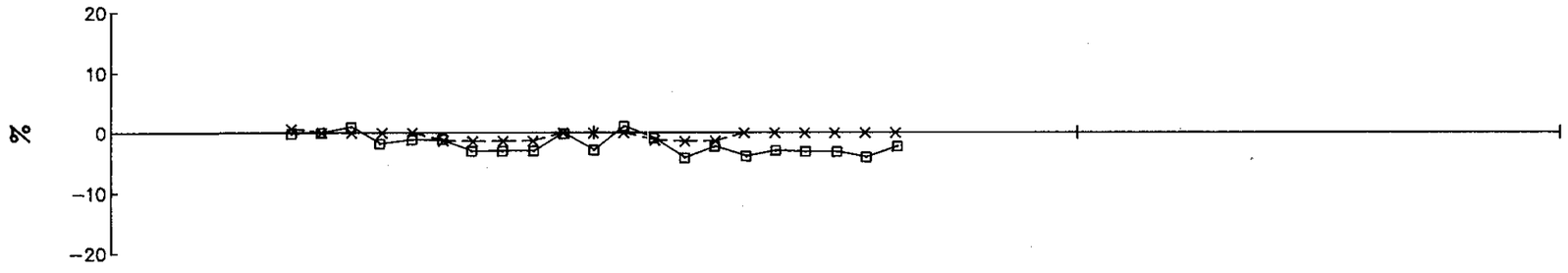


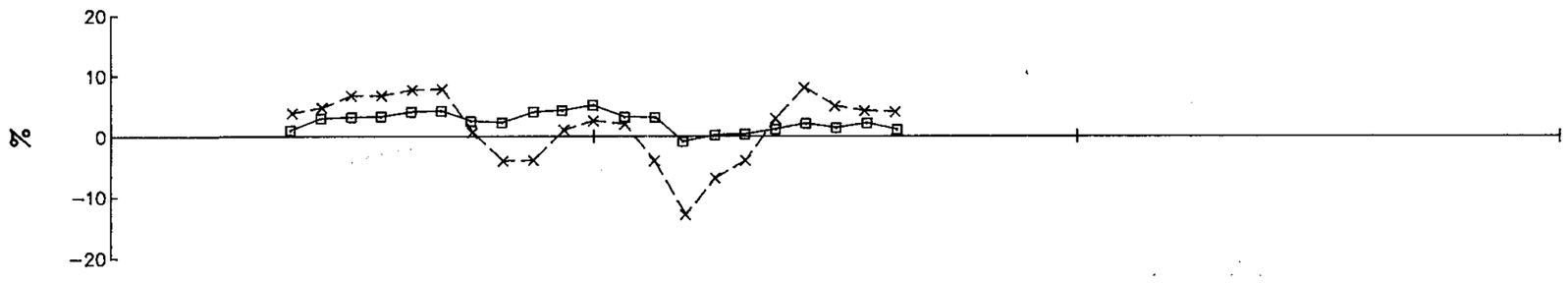
MAX — MIN

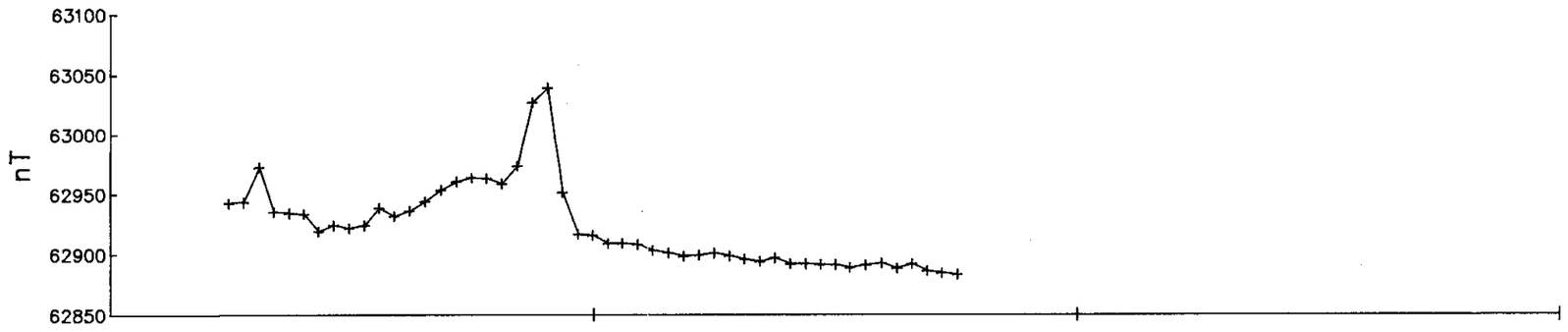
Tx ⟶ Rx = 100m

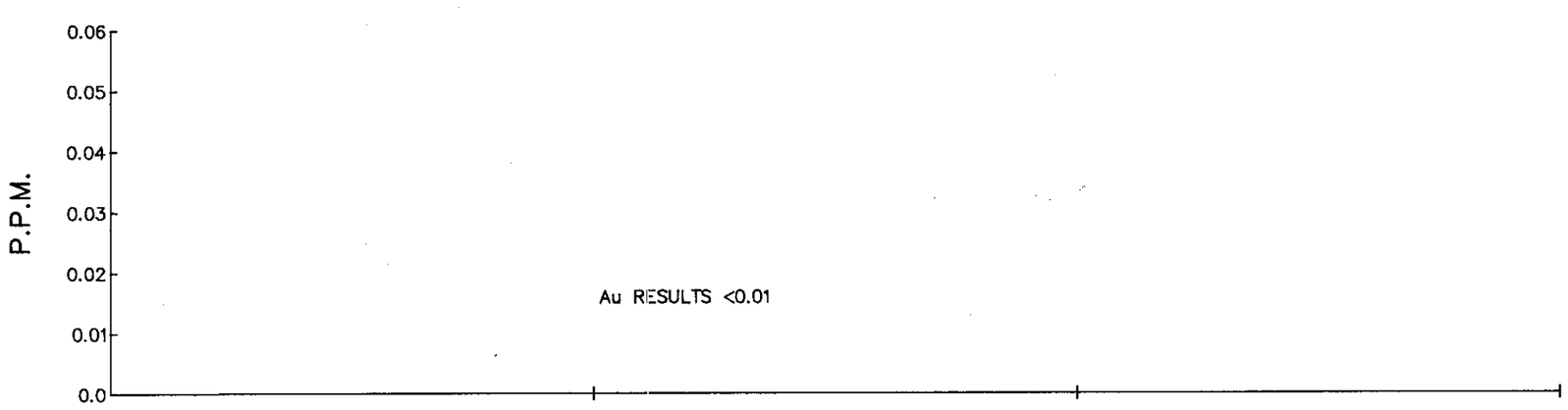
IN PHASE ⊡——⊡

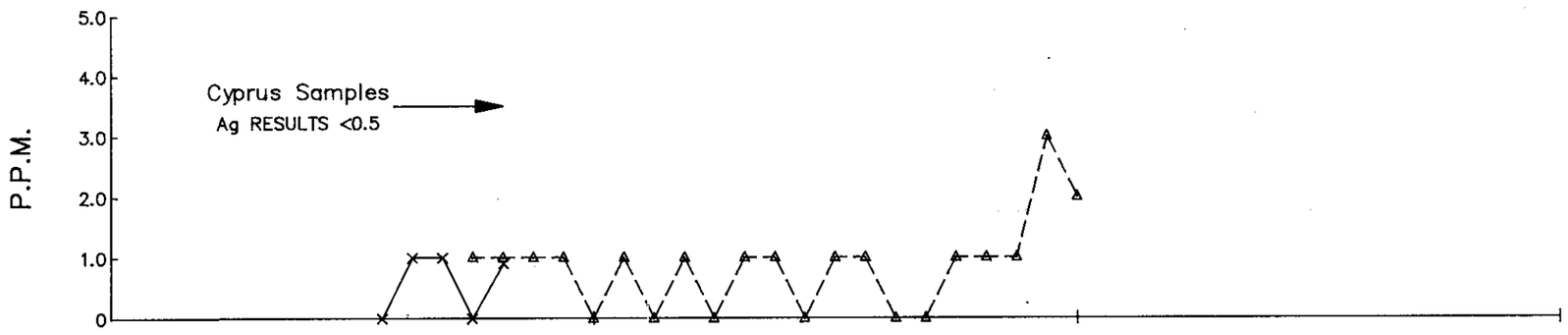
OUT OF PHASE ×– – –×

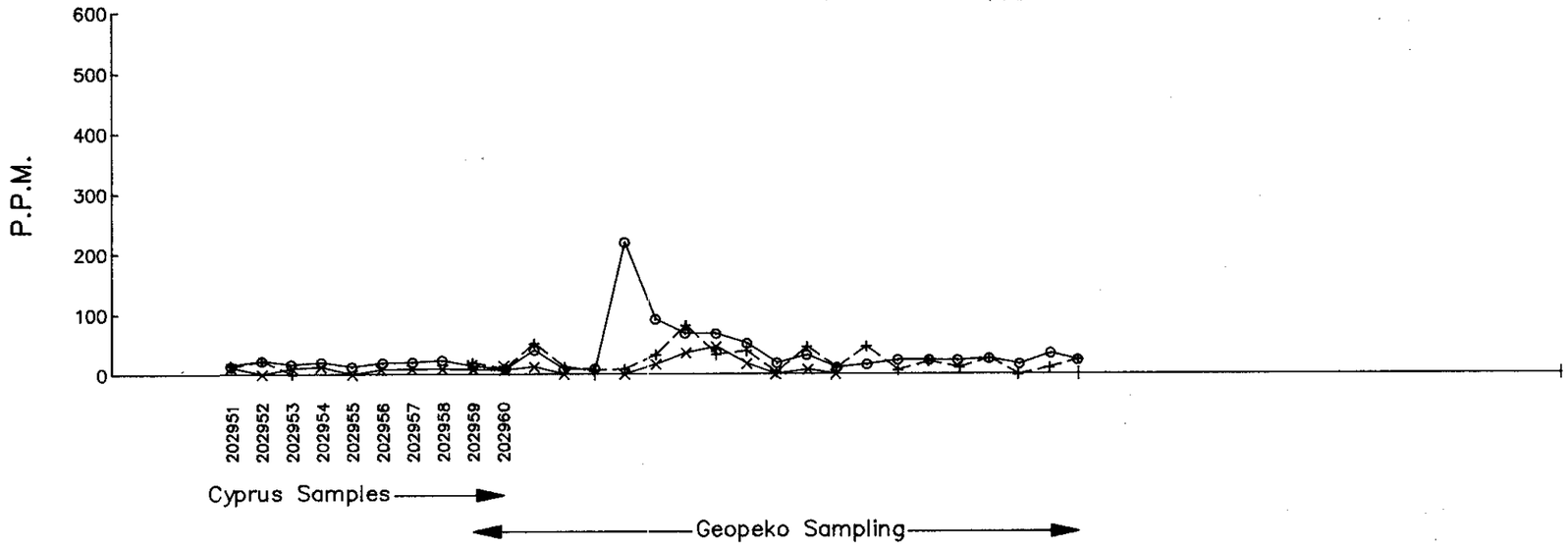


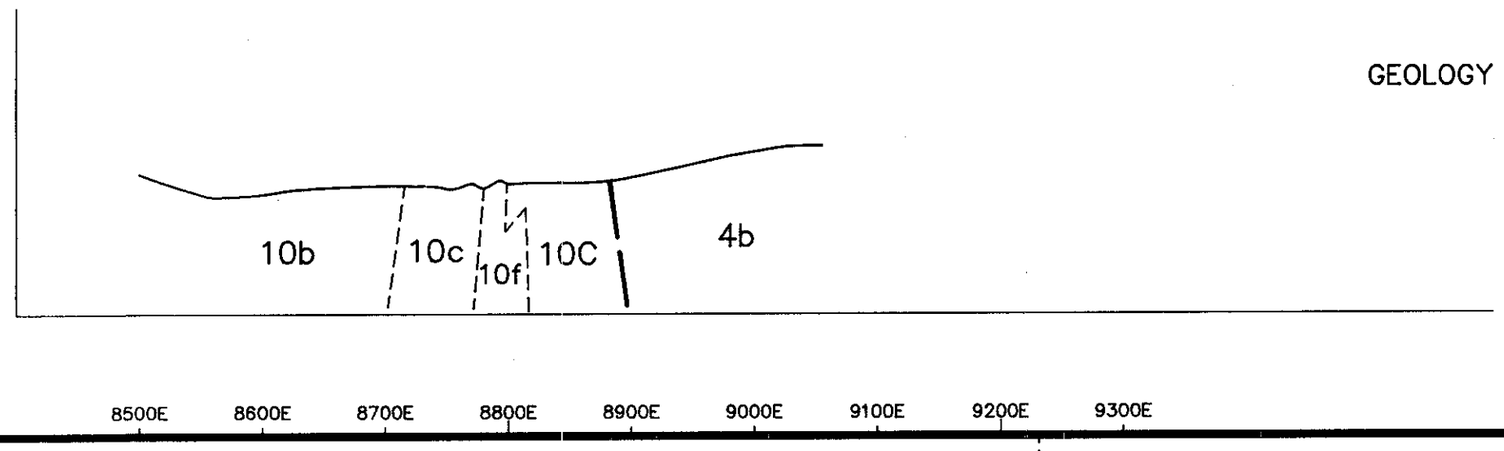












7324

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

MT. OSMUND WEST
LINE 14600W
PROFILES

DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 5000 (50 0 100 200 METRES)

FIG.

REPORT 525

ENCLOSURE 29

87-2696 Vol 4/4 7325

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY — E.L. 40/85

MT. OSMUND WEST
LINE 25
PROFILES

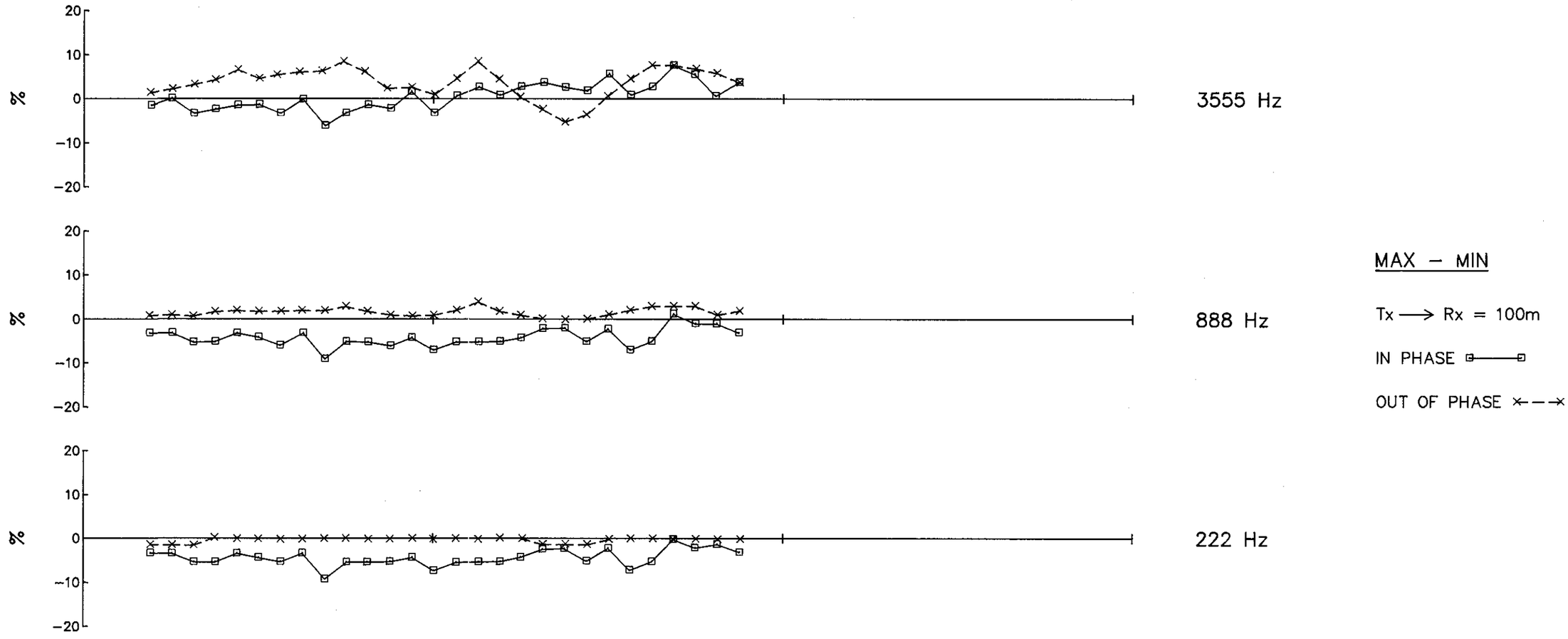
DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 5000 (80 0 100 200 METRES)

FIG.

REPORT 526

ENCLOSURE 30

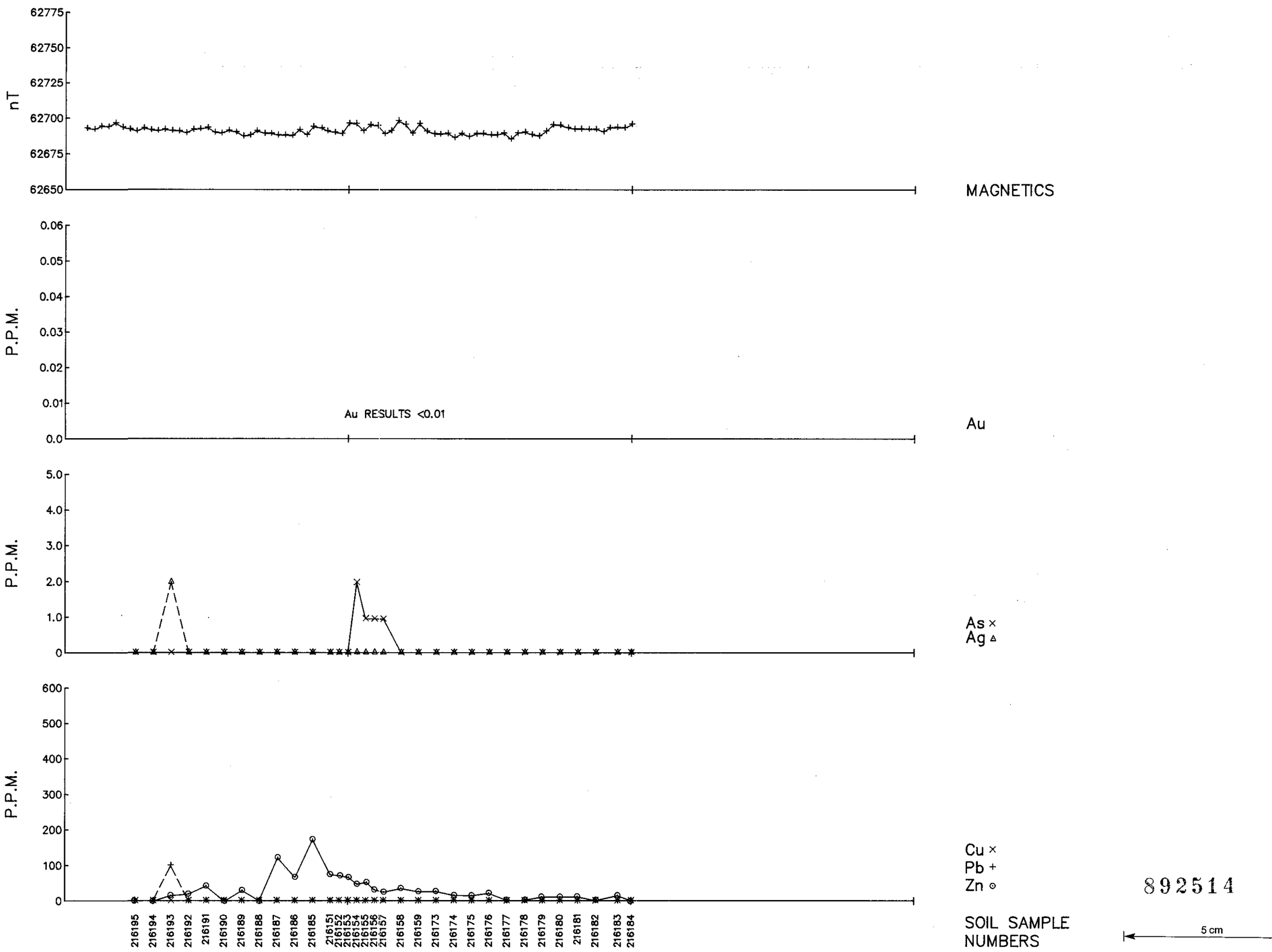


MAX − MIN

Tx ⟶ Rx = 100m

IN PHASE

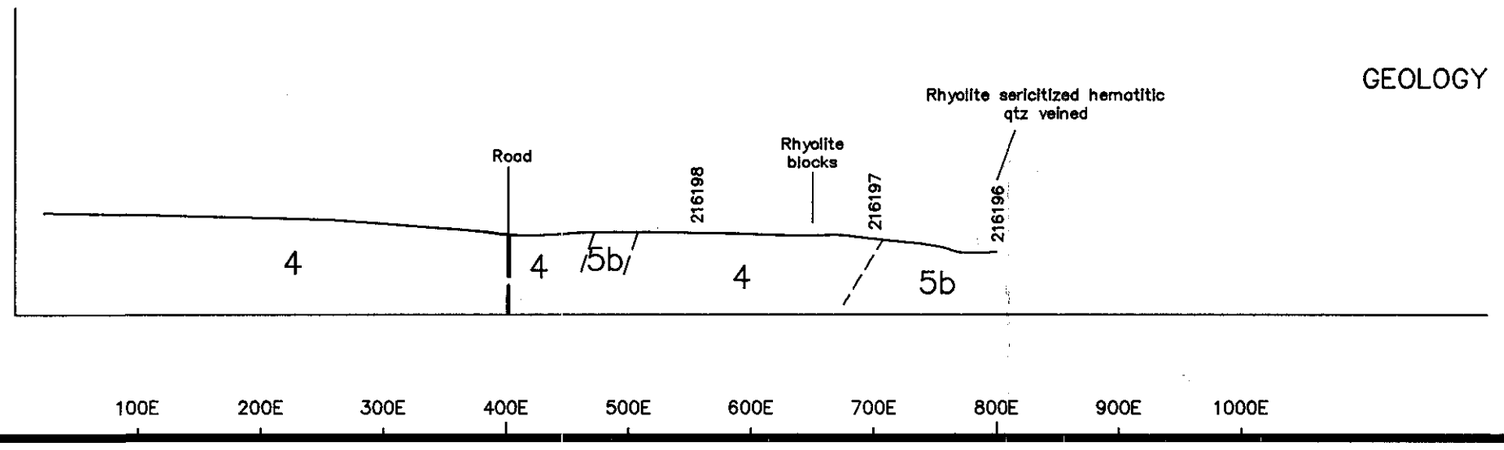
OUT OF PHASE



892514

SOIL SAMPLE NUMBERS

5 cm



87-2696 Vol 414 7326

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WOOLOOMOOLOO CREEK

LINE 6750

PROFILES

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

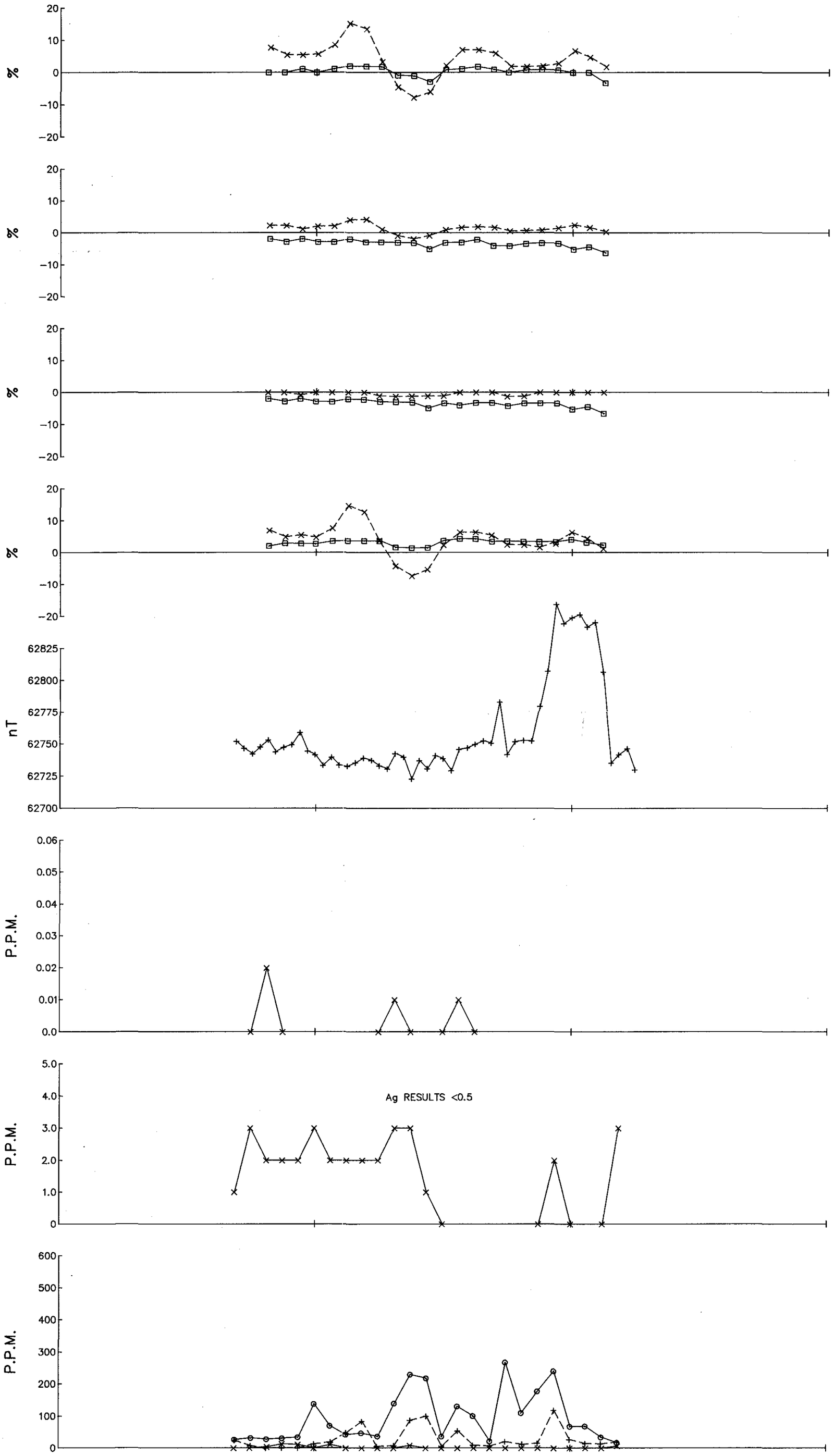
DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 5000 50 0 100 200 METRES

FIG.



MAX − MIN

Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

OUT OF PHASE ×– – –×

87-2696 Vol 4/4

7327

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY − E.L. 40/85

MT. OSMUND EAST
LINE 15
PROFILES

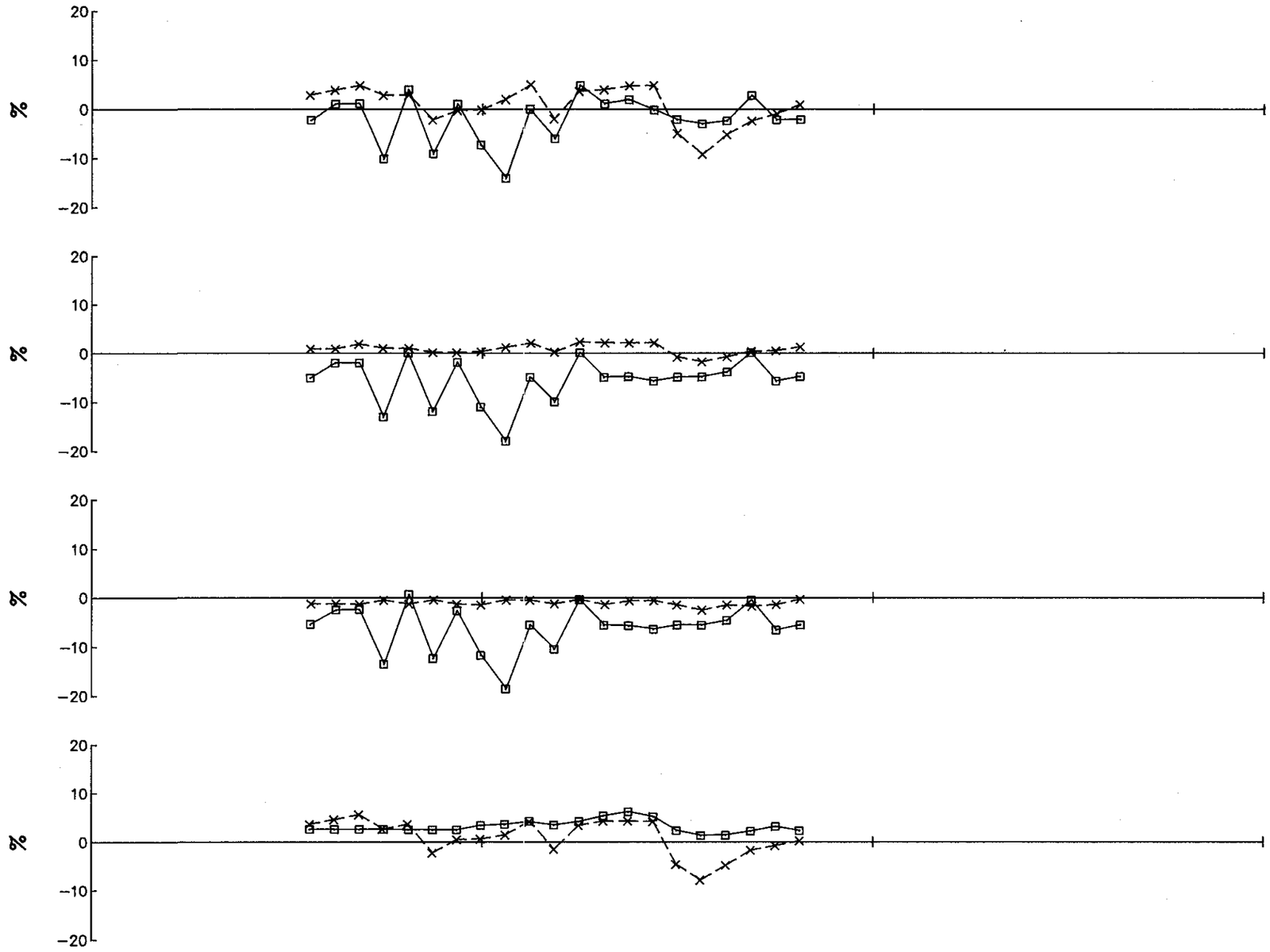
DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 5000 (80 0 100 200 METRES)

FIG.

REPORT 505

ENCLOSURE 22

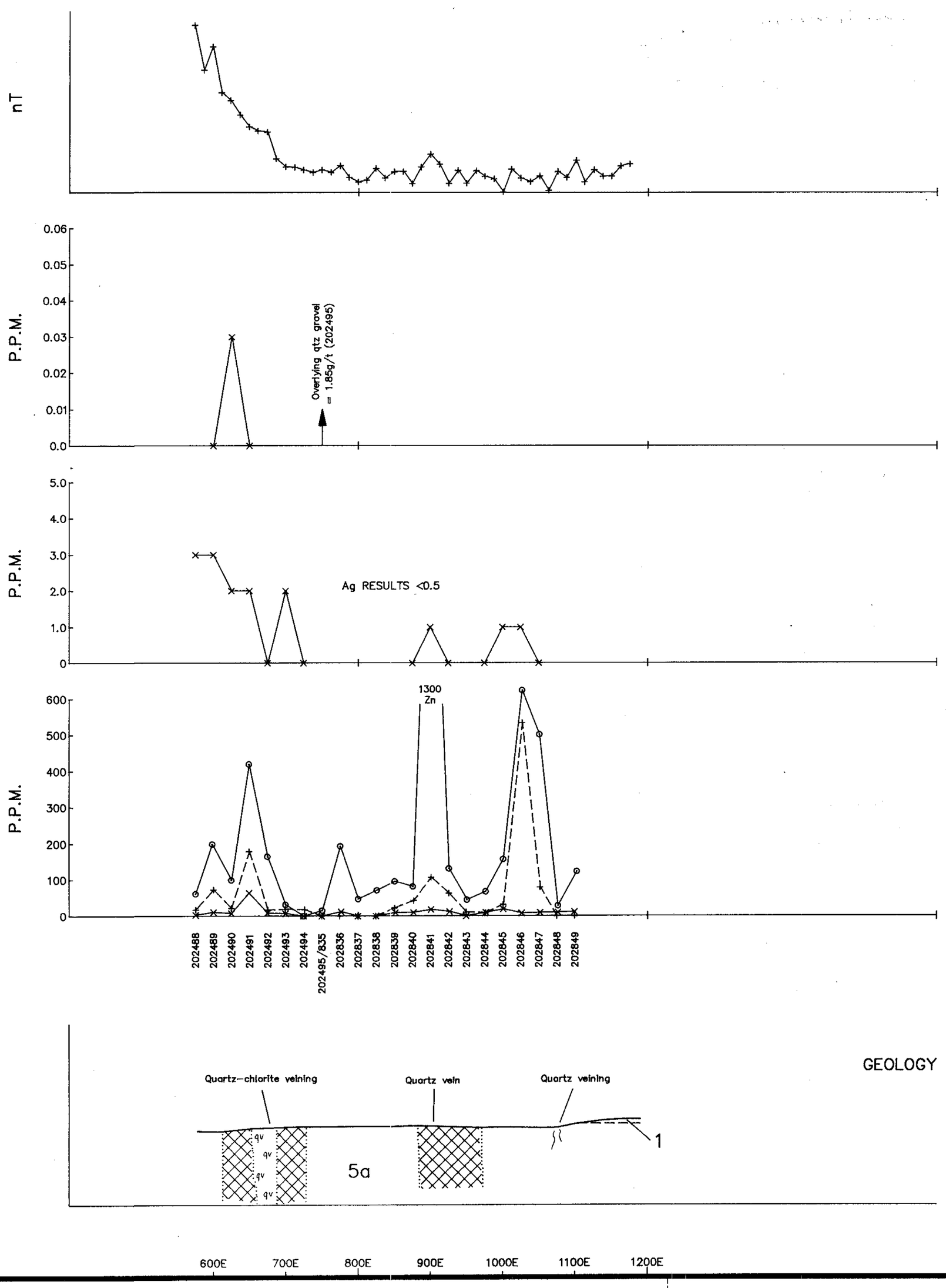


MAX — MIN

Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

OUT OF PHASE ×– –×



SOIL SAMPLE NUMBERS 892510

5 cm

87-2696 Vol 414 7328

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

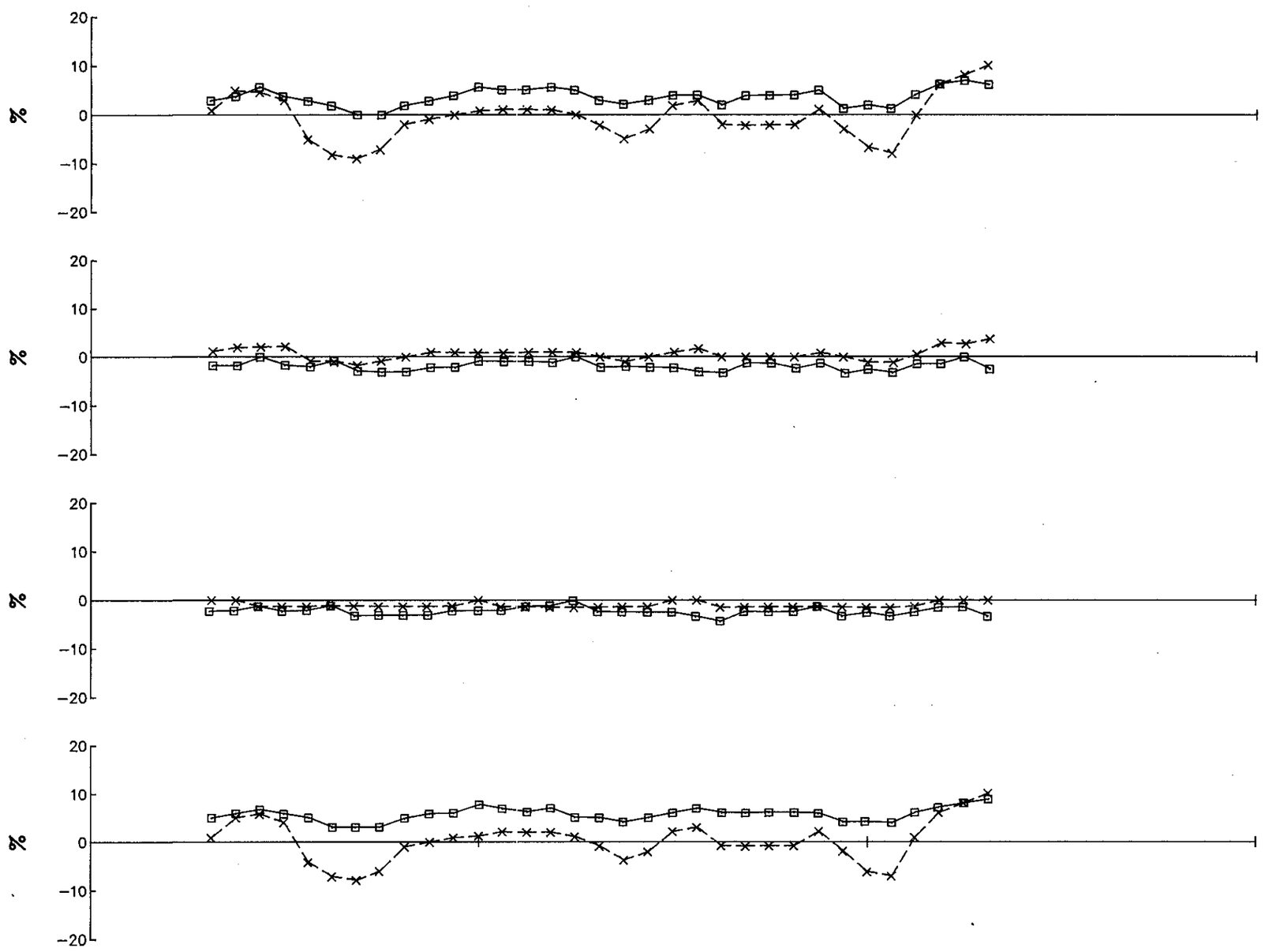
ELLIOTT BAY — E.L. 40/85

MT. OSMUND EAST
LINE 16
PROFILES

DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 5000 (50 0 100 200 METRES)

FIG.

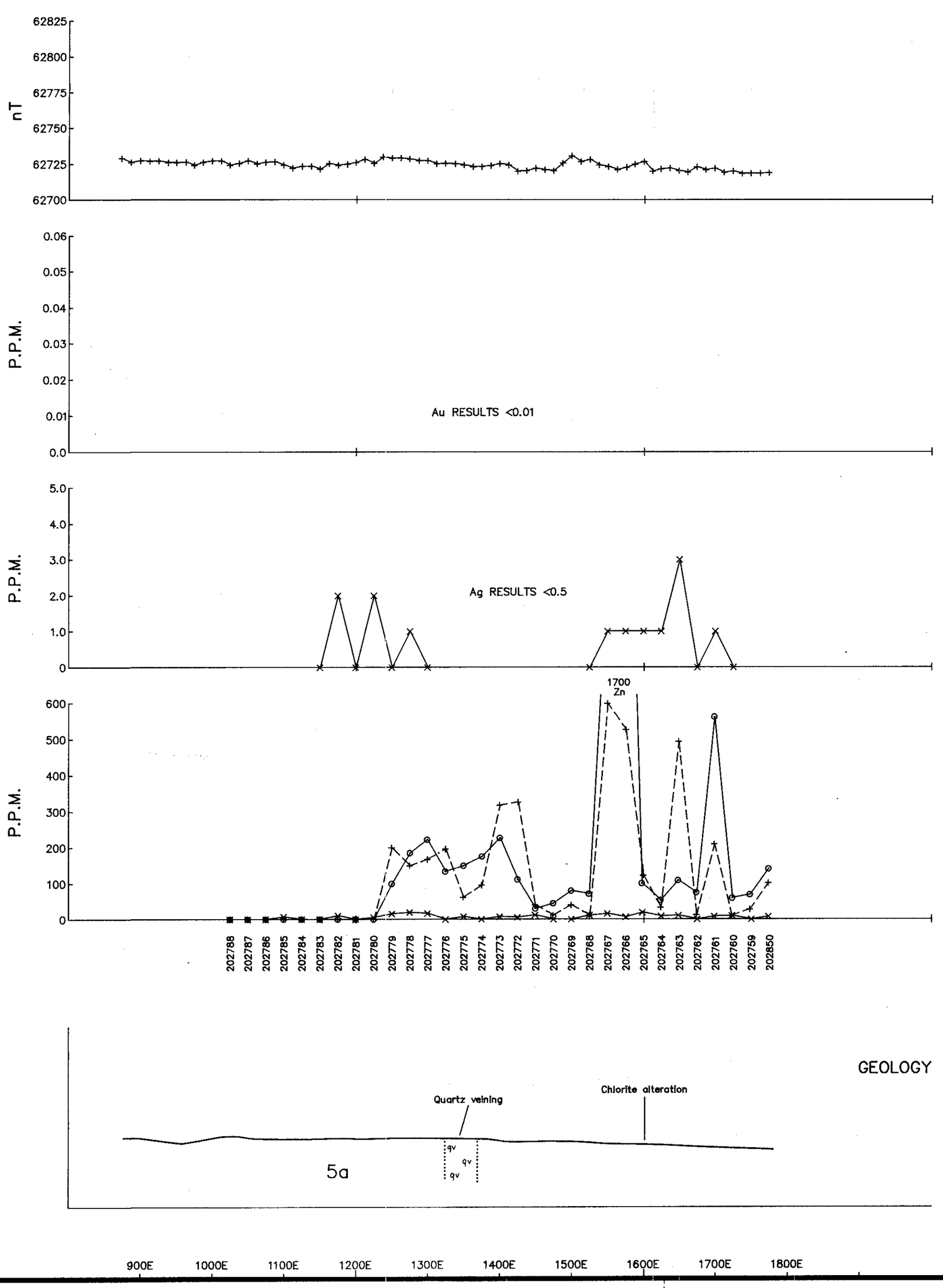


MAX − MIN

Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

OUT OF PHASE ×– –×



892517

7329

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

MT. OSMUND EAST
LINE 17
PROFILES

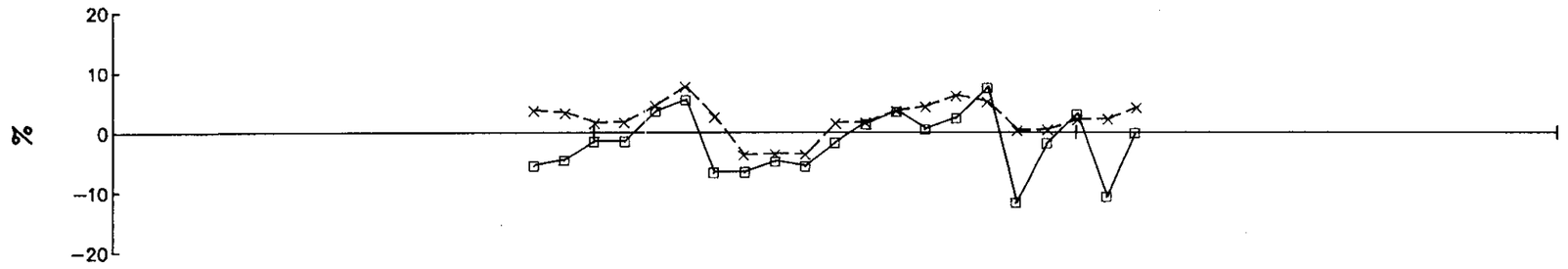
DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 5000 (50 0 100 200 METRES)

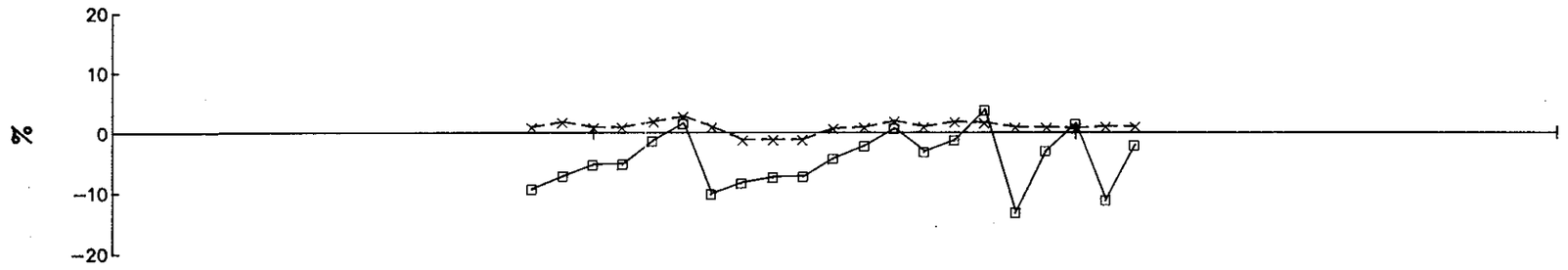
FIG.

REPORT 526

ENCLOSURE 24



3555 Hz



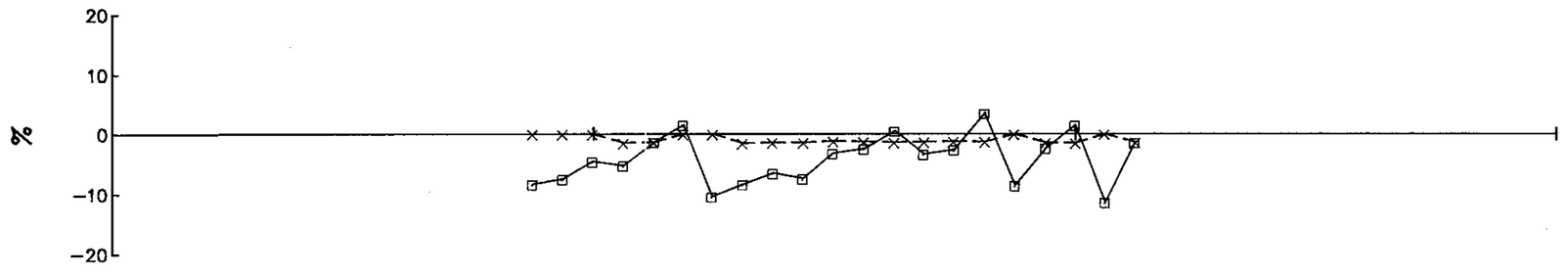
888 Hz

MAX − MIN

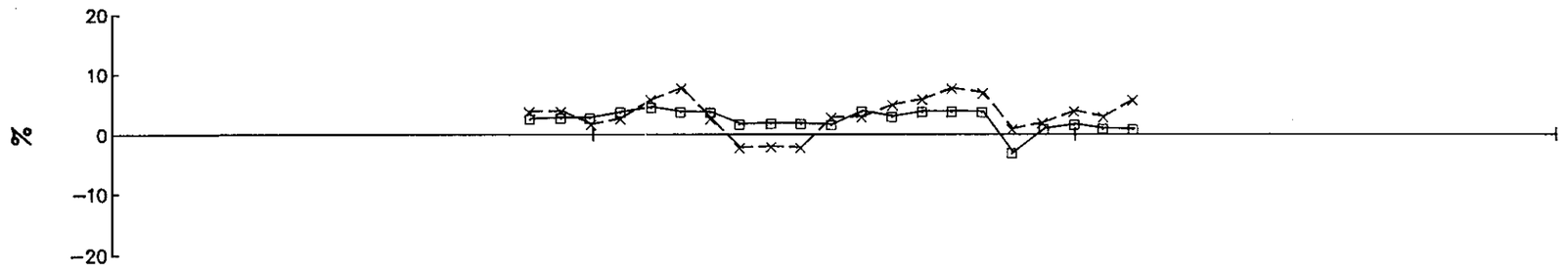
Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

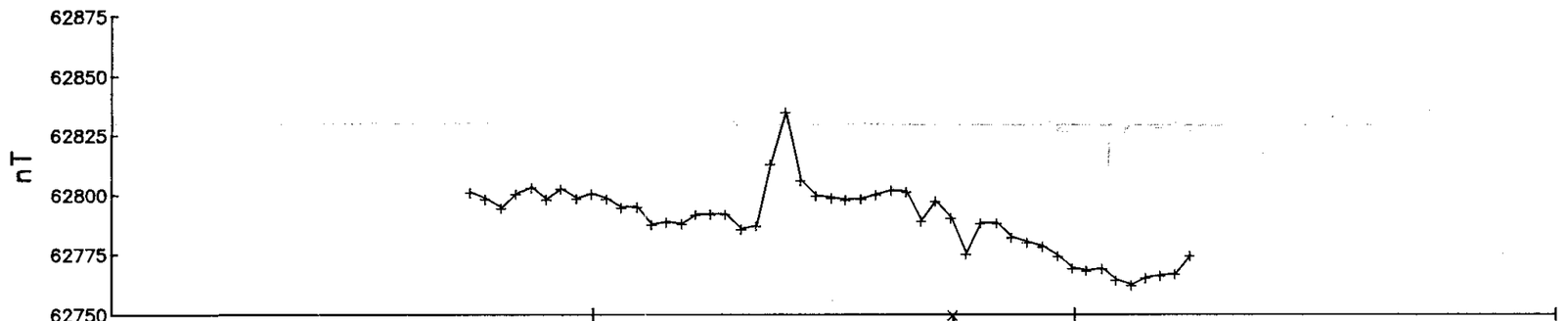
OUT OF PHASE ×– –×



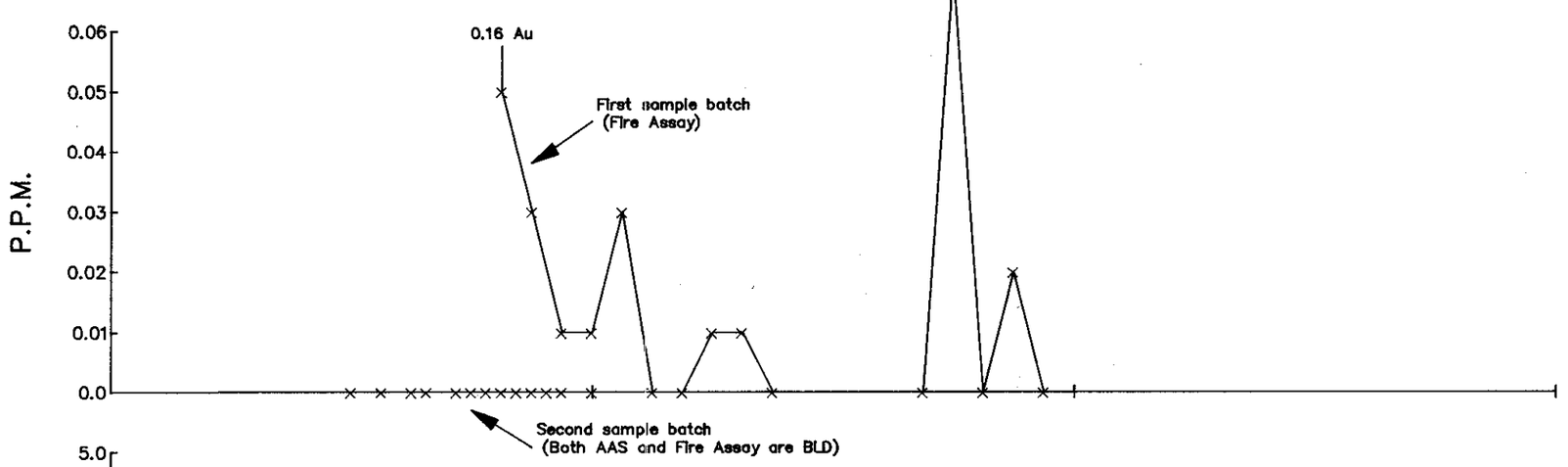
222 Hz



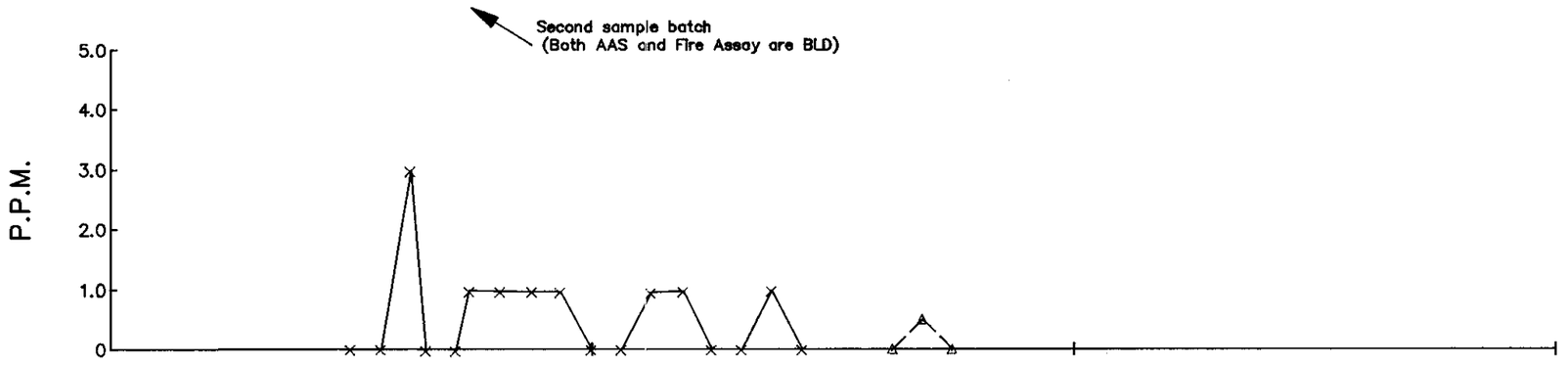
3555 Hz −222 Hz



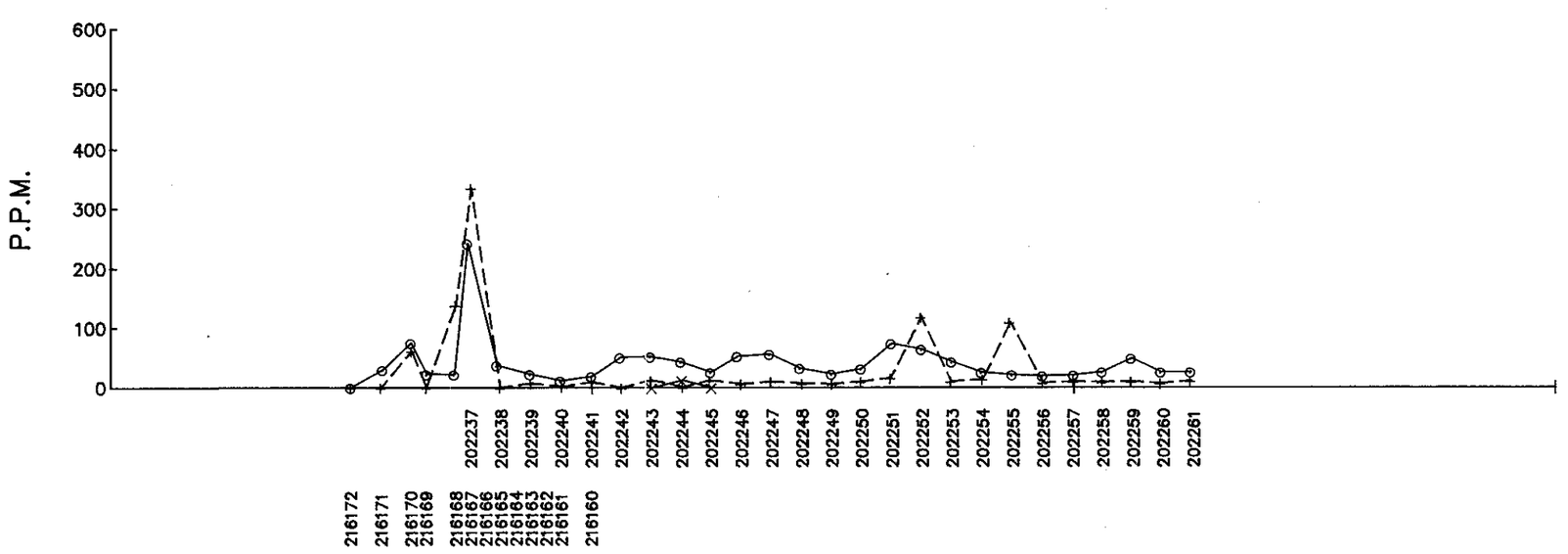
MAGNETICS



Au



As ×
Ag △

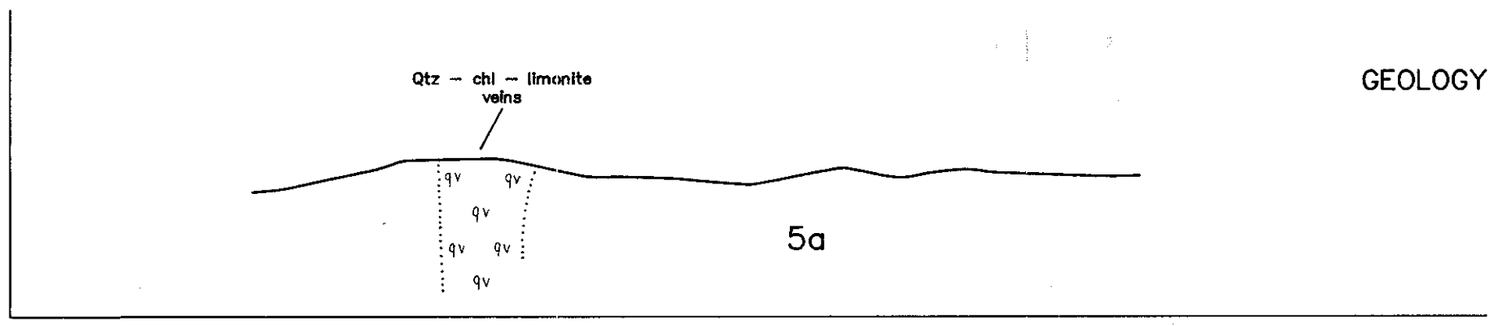


Cu ×
Pb +
Zn ⊙

89251S

SOIL SAMPLE
NUMBERS

5 cm



GEOLOGY

87-2696 Vol 4/4

7330

500W 400W 300W 200W 100W 00 100E 200E 300E 400E

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY − E.L. 40/85

NORTH WATERLOO CREEK
LINE 18
PROFILES

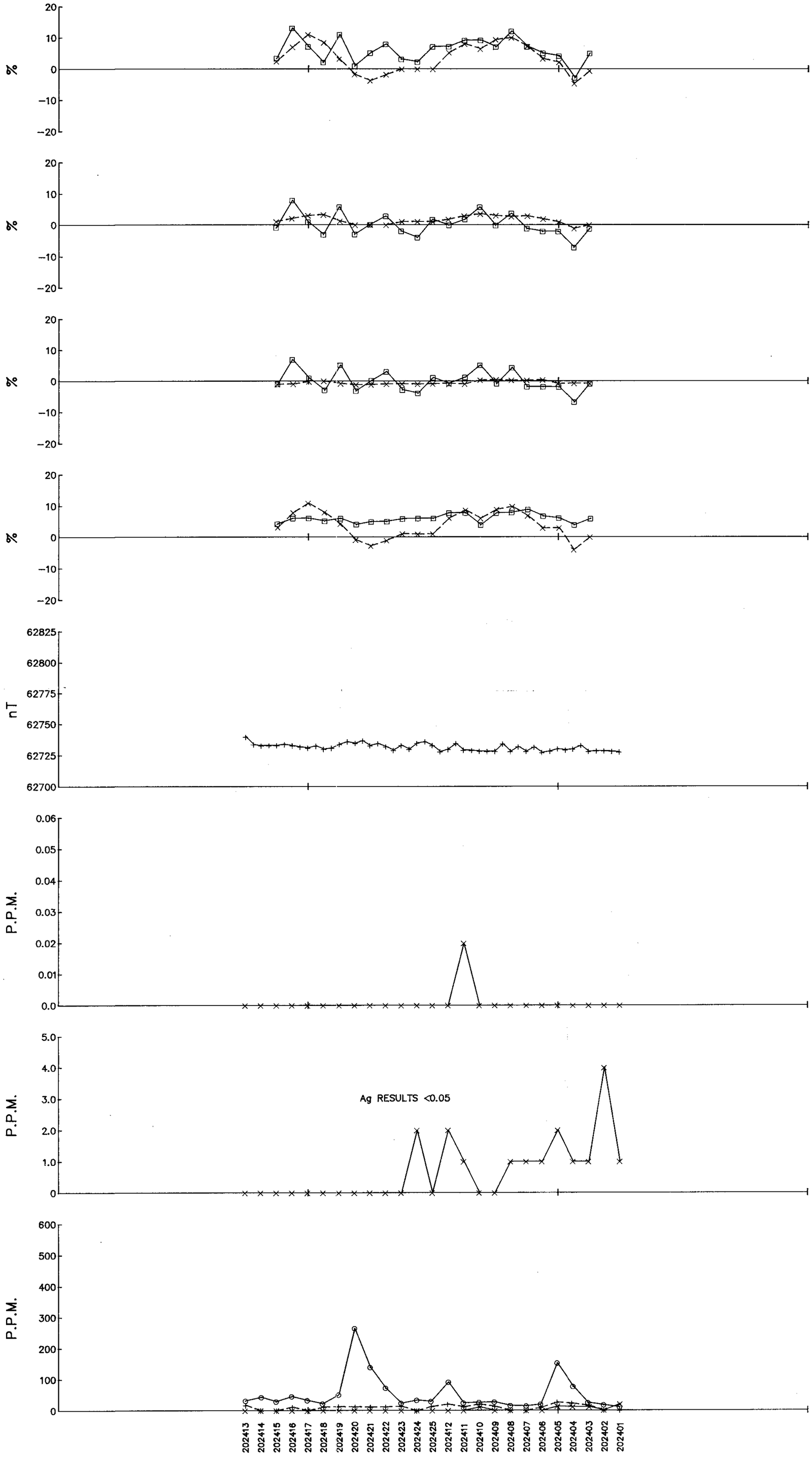
DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 5000 50 0 100 200 METRES

FIG.

REPORT 525

ENCLOSURE 35



REPORT 525

ENCLOSURE 36

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W
100 W
00
100 E
200 E
300 E
400 E
500 E



LEGEND

CAMBRIAN – MT. READ VOLCANICS

- 5a — Fine to medium grained rhyolitic pyroclastics
- 5d — Coarse grained rhyolitic pyroclastics
- 5e — Tuffaceous siltstone and black shale

CAMBRIAN INTRUSIVES

- 6 — Elliott Point Porphyry

- Highly FeOx stained
- q — Quartz viens
- g — Gossan
- Track
- Creek with direction of flow
- /50 — Strike and dip of bedding
- Geological contact inferred
- Geological contact definite

892520

5 cm

7332

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

GEOLOGY

DRAWN BY : R.H
DRAFTSMAN : T.G.D.S.
DATE : April'87
REVISIONS :
FILE No.

SCALE 1 : 2500 — 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 37



892521

5 cm

GN
MN
13°
GN = TN

7333

87-2696 Vol 414

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.	
ELLIOTT BAY – E.L. 40/85 NORTH LEWIS SOIL GEOCHEMISTRY SAMPLE LOCATIONS	DRAWN BY : R.H. DRAFTSMAN : T.G.D.S. DATE : April '87 REVISIONS : FILE No.
SCALE 1 : 2500 (25 0 50 100 METRES)	FIG.

REPORT 525

ENCLOSURE 38

N. W. Computer Aided Drafting Centre (004 354315)

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W
100 W
00
100 E
200 E
300 E
400 E
500 E

RIVER

LEWIS

CONTOUR INTERVAL

6 >100 – 500 ppm

12 >500 ppm

GN
MN
13°
GN = TN

892522

5 cm

87-2696 Vol 4/4

7334

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

SOIL GEOCHEMISTRY

COPPER

DRAWN BY : R.H.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 39

N. W. Computer Aided Drafting Centre (004 354315)

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W
100 W
00
100 E
200 E
300 E
400 E
500 E

RIVER

LEWIS

CONTOUR INTERVAL

39	>100 – 500 ppm
33	500 – 1000 ppm
37	>1000 ppm

GN
MN
13°
GN = TN

892523

5 cm

7335

87-2696 Vol 414

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

SOIL GEOCHEMISTRY

LEAD

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500
25 0 50 100
METRES

FIG.

REPORT 525

ENCLOSURE 40

N. W. Computer Aided Drafting Centre (004 354315)

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W | 100 W | 00 | 100 E | 200 E | 300 E | 400 E | 500 E

RIVER

LEWIS

CONTOUR INTERVAL

42 >100 – 500 ppm

43 >500 ppm

GN

MN

13°

GN = TN

892524

5 cm

87-2696 Vol 414

7336

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

SOIL GEOCHEMISTRY

ZINC

DRAWN BY : R.H.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500

25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 41

N. W. Computer Aided Drafting Centre (004 354315)

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W | 100 W | 00 | 100 E | 200 E | 300 E | 400 E | 500 E

RIVER

LEWS

CONTOUR INTERVAL

70 >2 – 10 ppm

89 >10 ppm

GN
MN
13°
GN = TN

892525

5 cm

7337

87-2696 vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

SOIL GEOCHEMISTRY

SILVER

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 42

N. W. Computer Aided Drafting Centre (004 354315)

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W
100 W
00
100 E
200 E
300 E
400 E
500 E

LEWIS RIVER

CONTOUR INTERVAL

58	>100 – 500 ppm
60	500 – 1000 ppm
63	>1000 ppm

GN
MN
13°
GN = TN

5 cm

892526

87-2696 Vol 4/4

7338

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
NORTH LEWIS
SOIL GEOCHEMISTRY
ARSENIC

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.
FIG.

SCALE 1 : 2500 — 25 0 50 100 METRES

REPORT 525

ENCLOSURE 43

N. W. Computer Aided Drafting Centre (004 354315)

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W
100 W
00
100 E
200 E
300 E
400 E
500 E

RIVER

LEWIS

CONTOUR INTERVAL

6 >0.01 – 0.05 ppm

12 >0.05 ppm

GN
MN
13°
GN = TN

892527

5 cm

7339

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

SOIL GEOCHEMISTRY

GOLD

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

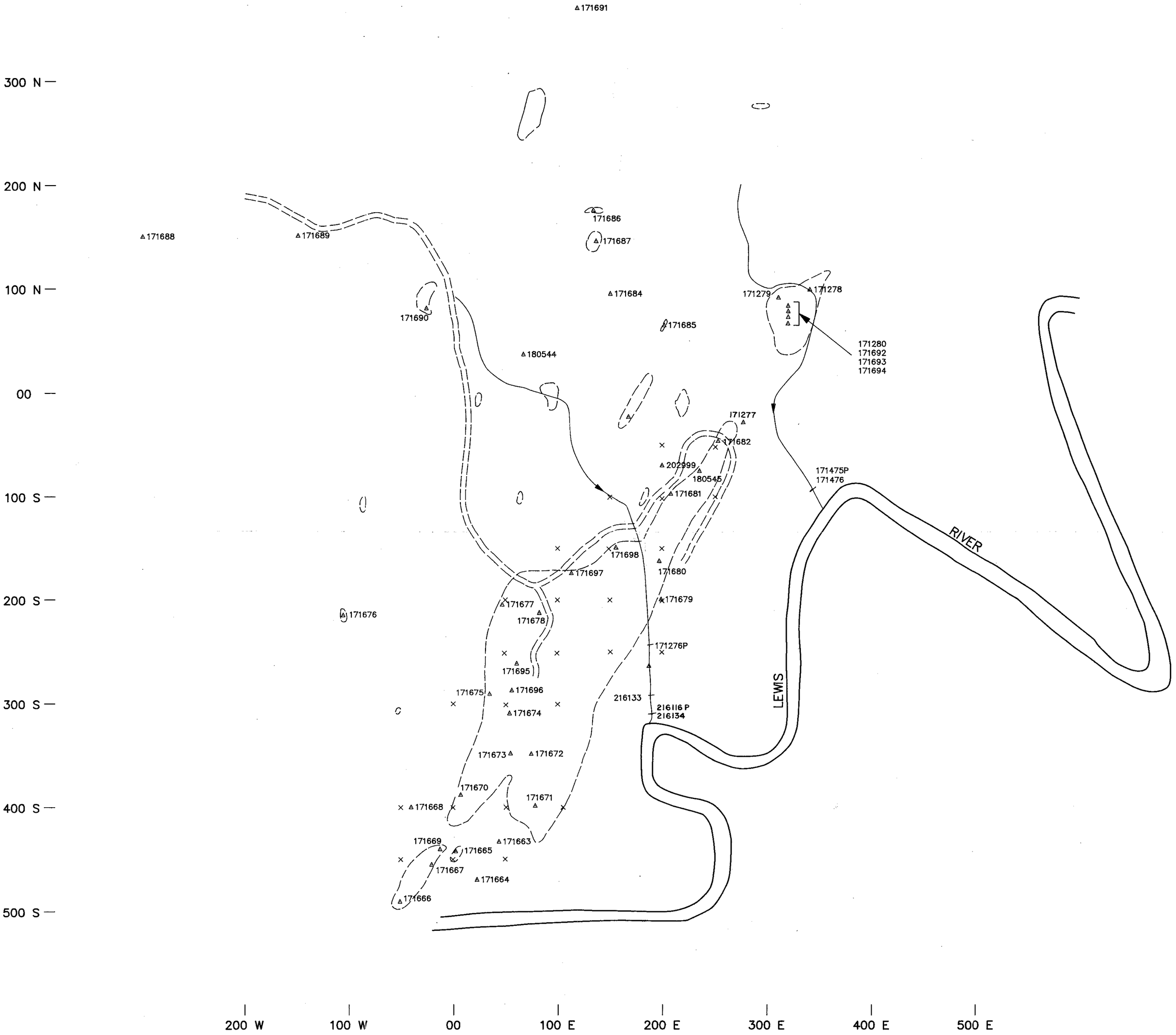
SCALE 1 : 2500 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 44

N. W. Computer Aided Drafting Centre (004 354315)



LEGEND

- Rock Chip
- Systematic 50m Strip Rock Chip
- Stream Sediment (−80#, P = panned concentrate)

GN
MN
13°
GN = TN

892528

5 cm

7340

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
NORTH LEWIS
ROCK CHIP & STREAM SEDIMENT
SAMPLE LOCATIONS

DRAWN BY : R.J.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

REPORT 525

ENCLOSURE 45

N. W. Computer Aided Drafting Centre (004 354315)

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W | 100 W | 00 | 100 E | 200 E | 300 E | 400 E | 500 E

145 / 150 / 155

5 / — / 10

5 / 15 / 235

80 / 740 / 200

20 / 5 / 10

475 / 1275

10 / 15 / 40

900 / 4200 / 500

1750 / 735 / 380

200 / 525 / 25

80 / 80 / 25

	Cu	Pb	Zn
171280	1.15%	4200	380
171692	7800	2475	205
171693	2000	4175	300
171694	2.85%	3000	335

510 / 140 / 95

2750 / 4.4% / 420

495 / 2650 / 125

510 / 1100 / 1900

6025 / 1.77% / 1200

2650 / 8150 / 1200

P: 95 40 / 15 30 / 25 25

RIVER

3600 / 1950 / 595

4550 / 8550 / 630

4.65% / 8800 / 1900

160 / 175 / 25

1650 / 930 / 995

560 / 215 / 900

P: 10 / 10 / 15

1275 / 795 / 220

1900 / 2750 / 1800

8875 / 925 / 325

LEWS

535 / 2125 / 560

230 / 340 / 65

80 / 150 / 25

P: 15 35 / — 30 / 10 15

655 / 3150 / 830

780 / 7400 / 555

505 / 2000 / 240

325 / 795 / 100

20 / 85 / 20

2480 / 1.3% / 2050

253 / 2000 / 95

180 / 445 / 155

1250 / 5750 / 915

475 / 1300 / 105

310 / 585 / 190

395 / 145 / 65

LEGEND

ROCK CHIP: Δ Cu ppm / Pb ppm / Zn ppm

STREAM SEDIMENT: Cu ppm / Pb ppm / Zn ppm (−80# Panned Concentrate); P: Cu ppm / Pb ppm / Zn ppm

GN
MN
13°
GN = TN

892529

5 cm

87-2696 Vol 4/4 7341

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

ROCK CHIP & STREAM SEDIMENT RESULTS

COPPER, LEAD & ZINC

DRAWN BY : R.J.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

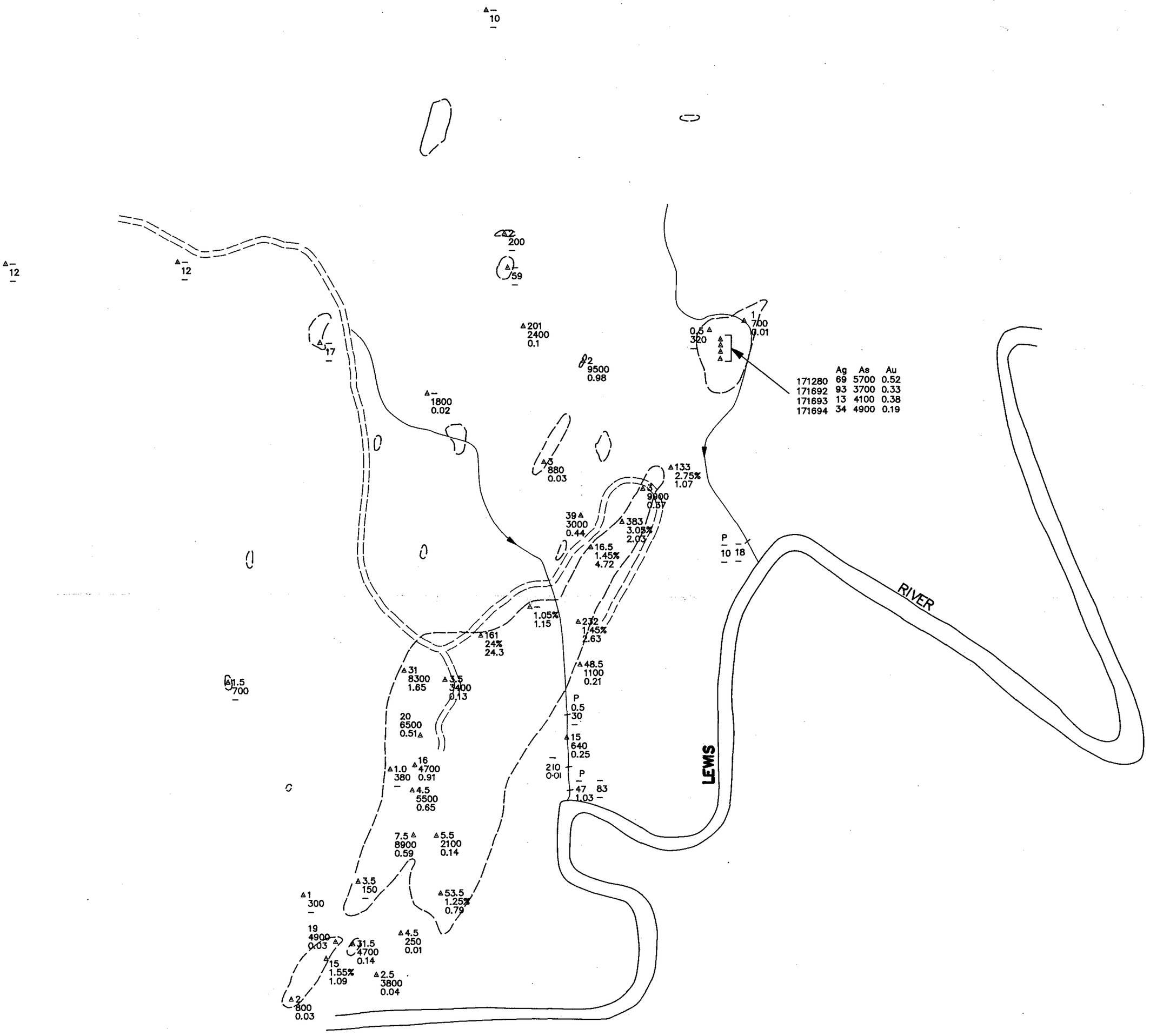
REPORT 525

ENCLOSURE 46

N. W. Computer Aided Drafting Centre (004 354315)

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W | 100 W | 00 | 100 E | 200 E | 300 E | 400 E | 500 E



892530

5 cm

7342

87-2696 Vol 44

LEGEND

ROCK CHIP: Ag ppm / As ppm / Au ppm

STREAM SEDIMENT: P / Ag ppm Ag ppm / As ppm As ppm / Au ppm Au ppm / −80# Panned Concentrate

GN
MN
13°
GN = TN

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
NORTH LEWIS
ROCK CHIP & STREAM SEDIMENT RESULTS
SILVER, ARSENIC & GOLD

DRAWN BY : R.J.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

REPORT 525

ENCLOSURE 47

N. W. Computer Aided Drafting Centre (004 354315)

300 N —

200 N —

100 N —

00 —

100 S —

200 S —

300 S —

400 S —

500 S —

202712 202711

202710 202709 202708

202705 202706 202707

202704 202703 202702 202701

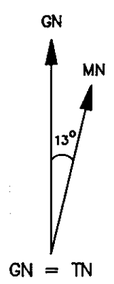
202449 202450 171749 171750

202448 202447 202446

202442 202443 202444 202445

202441 202440 202439

200 W | 100 W | 00 | 100 E | 200 E | 300 E | 400 E | 500 E



892531

5 cm

87-2696 Vol 4/4 7343

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
NORTH LEWIS

Systematic Rock Chip Locations
50m Strip Samples

DRAWN BY : R.J.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :

FILE No.

SCALE 1 : 2500 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 48

300 N —

200 N —

100 N —

00 —

100 S —

200 S —

300 S —

400 S —

500 S —

200 W	100 W	00	100 E	200 E	300 E	400 E	500 E

						△10 25 15	△80 510 650
					△165 80 95	△410 1875 270	△35 10 10
				△25 50 15	△445 200 95	△600 445 135	
			△80 705 40	△690 240 345	△460 195 140	△805 650 80	
			△70 180 25	△255 880 210	△380 85 110	△630 315 105	
		△– – 20	△215 665 285	△770 380 35			
	△– 10 15	△105 780 45	△185 1525 320	△45 35 50			
	△170 120 55	△430 685 215	△95 275 105				

LEGEND

△ CU
PB
ZN

GN
MN
13°
GN = TN

892532

5 cm

87-2696 Vol 4/4 7344

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
NORTH LEWIS
Systematic Rock Chip Results
50m Strip Samples
Copper, Lead, & Zinc

DRAWN BY : R.J.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 25 0 50 100 METRES

FIG.

300 N —

200 N —

100 N —

00 —

100 S —

200 S —

300 S —

400 S —

500 S —

200 W	100 W	00	100 E	200 E	300 E	400 E	500 E

						▲– 140 –	▲10 4790 0.12
					▲0.5 1350 –	▲7 3560 0.68	▲0.5 70 –
				▲0.5 280 –	▲0.5 1570 1.63	▲1 970 0.025	
			▲1.5 960 –	▲1 30 0.29	▲– 1650 –	▲2 1180 0.04	
			▲0.5 590 0.035	▲4.5 5520 0.235	▲– 1130 –	▲– 890 –	
		▲– 13 –	▲0.5 1530 1.01	▲1.5 1600 0.06			
	▲– 12 –	▲1.5 1030 –	▲2 1980 0.04	▲– 260 –			
	▲– 850 –	▲1.5 2040 –	▲1 320 –				

LEGEND

▲AG ppm
AS ppm
AU ppm

GN

MN

13°

GN = TN

892533

5 cm

87-2696 Vol 4/4 7945

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

Systematic Rock Chip Results

50m Strip Samples

Silver, Arsenic, & Gold

DRAWN BY : R.J.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 — 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 50

300 N
200 N
100 N
00
100 S
200 S
300 S
400 S
500 S

200 W
100 W
00
100 E
200 E
300 E
400 E
500 E

RIVER

LEWIS

0.1
0.01
0.52
0.33
0.38
0.19
0.03
1.07
0.37
0.12
0.44
2.03
4.72
0.68
1.63
1.15
0.025
24.3
2.63
DDH 4
DDH 2
0.21
0.04
21-23m @ 0.15
DDH 1
1.65
0.29
0.13
0.035
0.235
0.51
0.25
DDH 5
0.91
DDH 3
0.01
1.01
0.06
53-55m @ 1.6
P
1.03
0.65
0.59
0.14
0.04
0.79
0.03
0.14
0.01
0.03

LEGEND

- Rock Chip
- Systematic 50m Strip Rock Chip
- Stream Sediment (−80#, P = panned concentrate)
- Au intersection — Geopeko Diamond Drill Hole

GN
MN
13°
GN = TN

892534

5 cm

87-2696 Vol 4/4

7346

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
NORTH LEWIS
ROCK CHIP & STREAM SEDIMENT RESULTS
GOLD

DRAWN BY : R.J.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

REPORT 525

ENCLOSURE 51

N. W. Computer Aided Drafting Centre (004 354315)



CONTOUR INTERVAL

- >50 – 60 nT
- 60 – 70
- 70 – 80
- 80 – 90
- >90 nT

NOTE: Add 62000 to all values

GN
MN
13°
GN = TN

892535

5 cm

7347

87-2696 Vol 414

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

GROUND MAGNETICS

DRAWN BY : J.R.B.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

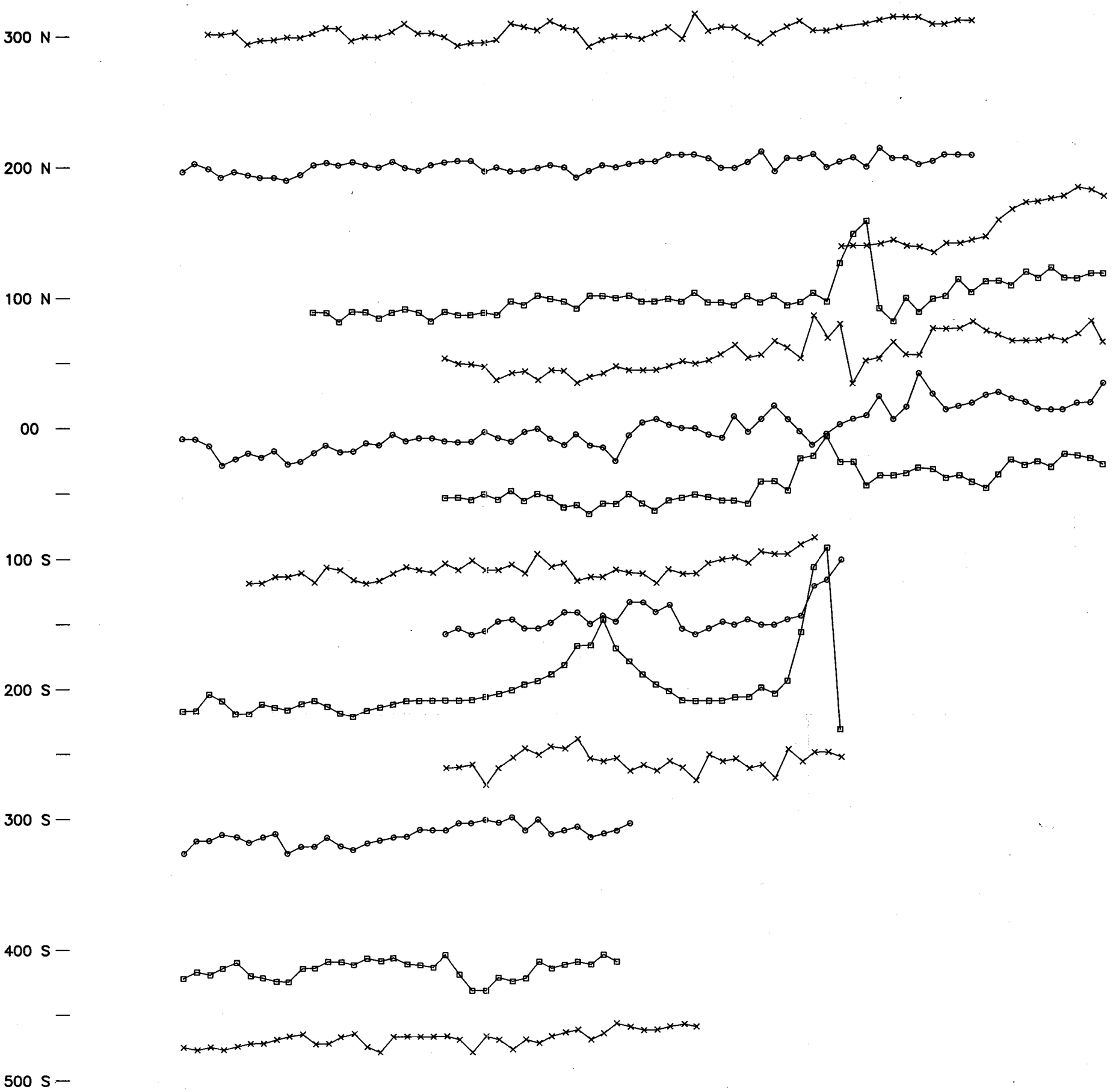
SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

REPORT 525

ENCLOSURE 52

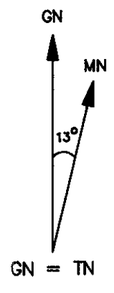
N. W. Computer Aided Drafting Centre (004 354315)



NOTES:

Vertical Scale 1cm = 10nT

Base value for profiles 62750nT



892536

5 cm

7348

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH LEWIS

GROUND MAGNETICS

Stacked Profiles

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

REPORT 525

ENCLOSURE 53

N. W. Computer Aided Drafting Centre (004 354315)

300 N —

200 N —

100 N —

00 —

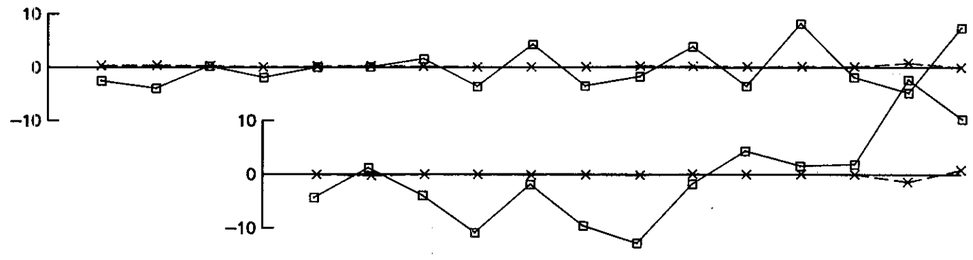
100 S —

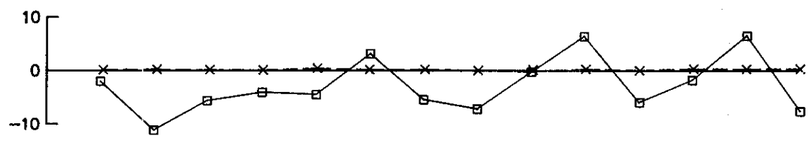
200 S —

300 S —

400 S —

500 S —





MAX — MIN

Vertical Scale 1cm = 10%

Tx ⟶ Rx = 100m

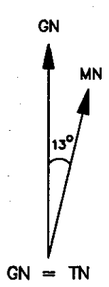
IN PHASE ⊡——⊡

OUT OF PHASE ×– –×

200 W | 100 W | 00 | 100 E | 200 E | 300 E | 400 E | 500 E

892537

5 cm



7349

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY — E.L. 40/85

NORTH LEWIS

MAX — MIN

222 Hz

DRAWN BY : R.H.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 54

N. W. Computer Aided Drafting Centre (004 354315)

300 N —

200 N —

100 N —

00 —

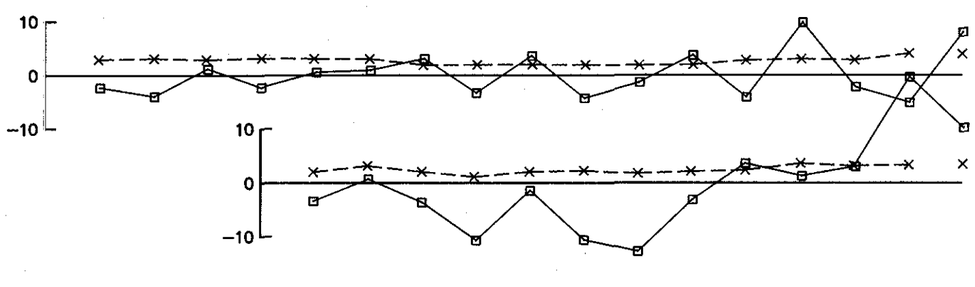
100 S —

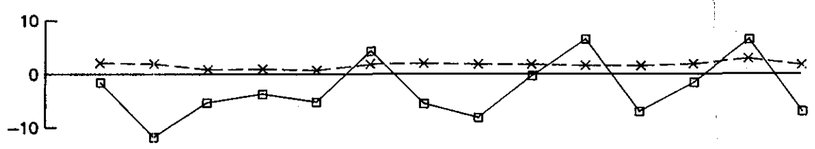
200 S —

300 S —

400 S —

500 S —





MAX — MIN

Vertical Scale 1cm = 10%

Tx ⟶ Rx = 100m

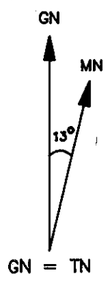
IN PHASE ⊡——⊡

OUT OF PHASE ×– –×

200 W | 100 W | 00 | 100 E | 200 E | 300 E | 400 E | 500 E

892538

5 cm



87-2696 Vol 4/4 7350

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY — E.L. 40/85

NORTH LEWIS

MAX — MIN

888 Hz

DRAWN BY : R.H.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

REPORT 525

ENCLOSURE 55

N. W. Computer Aided Drafting Centre (004 354315)

300 N —

200 N —

100 N —

00 —

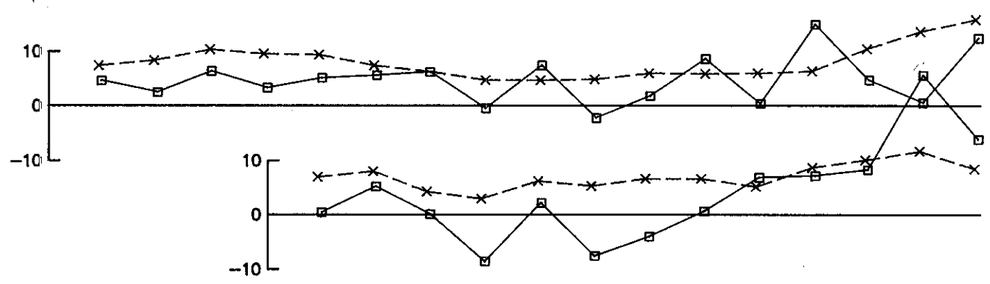
100 S —

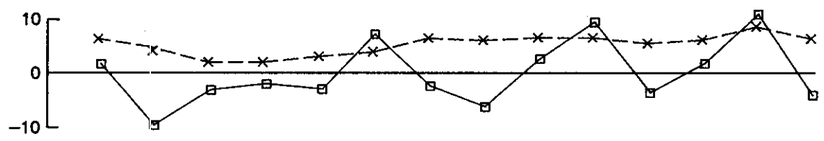
200 S —

300 S —

400 S —

500 S —





200 W | 100 W | 00 | 100 E | 200 E | 300 E | 400 E | 500 E

MAX — MIN

Vertical Scale 1cm = 10%

Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

OUT OF PHASE ×– –×

892539

5 cm

GN

MN

13°

GN = TN

7251

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY — E.L. 40/85

NORTH LEWIS

MAX — MIN

3555 Hz

DRAWN BY : R.H.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500 (-20, 0, 80, 100 METRES)

FIG.

ENCLOSURE 56

REPORT 525

N. W. Computer Aided Drafting Centre (004 354315)

300 N —

200 N —

100 N —

00 —

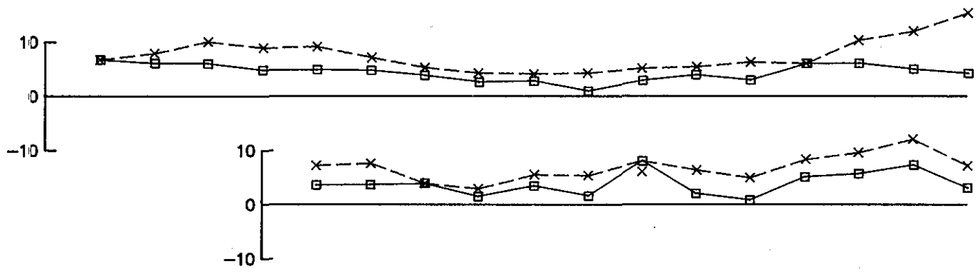
100 S —

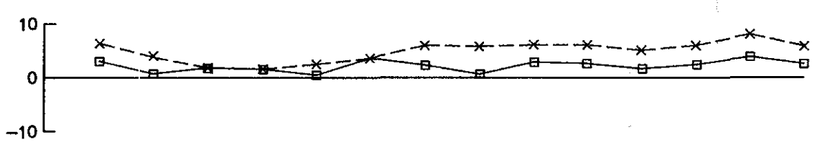
200 S —

300 S —

400 S —

500 S —





200 W | 100 W | 00 | 100 E | 200 E | 300 E | 400 E | 500 E

MAX — MIN

Vertical Scale 1cm = 10%

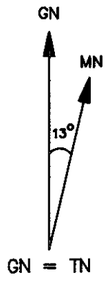
Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

OUT OF PHASE ×– –×

892540

5 cm



7352

87-2696 Vol 414

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY — E.L. 40/85

NORTH LEWIS

MAX — MIN

3555 Hz —222 Hz

DRAWN BY : R.H.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 2500 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 57

N. W. Computer Aided Drafting Centre (004 354315)

13400 N

13300 N

13200 N

13100 N

13000 N

9900 E

10000 E

10100 E

10200 E

CONTOUR INTERVAL

14	> 1000 ppm
10	1000 – 200 ppm
6	200 – 20 ppm
	< 20 ppm

– = Below limit of detection

• Cyprus Infill Lines

GN

MN

13°

GN = TN

5 cm

892541

7353

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WART HILL

SOIL GEOCHEMISTRY

COPPER

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 1000

METRES

FIG.

REPORT 525

ENCLOSURE 58

13400 N —

13300 N —

13200 N —

13100 N —

13000 N —

9900 E

10000 E

10100 E

10200 E

CONTOUR INTERVAL

37	> 600 ppm
33	600 – 300 ppm
39	300 – 150 ppm
	< 150 ppm

– = Below limit of detection

• Cyprus Infill Lines

GN

MN

13°

GN = TN

892542

87-2696 Vol 414 7354

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WART HILL

SOIL GEOCHEMISTRY

LEAD

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 1000 (10 0 20 40 METRES)

FIG.

5 cm

REPORT 525

ENCLOSURE 59

13400 N

13300 N

13200 N

13100 N

13000 N

9900 E

10100 E

10200 E

CONTOUR INTERVAL

45	> 2000 ppm
43	2000 – 1000 ppm
42	1000 – 500 ppm
44	500 – 250 ppm
	< 250 ppm

– = Below limit of detection

• Cyprus Infill Lines

GN

MN

13°

GN = TN

892543

5 cm

87-2696 Vol 44

7355

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WART HILL

SOIL GEOCHEMISTRY

ZINC

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 1000

METRES

FIG.

REPORT 525

ENCLOSURE 60

13400 N —

13300 N —

13200 N —

13100 N —

13000 N —

9900 E

10000 E

10100 E

10200 E

CONTOUR INTERVAL

69 > 3 ppm

70 3 – 1.5 ppm

< 1.5 ppm

• Cyprus Infill Lines

GN

MN

13°

GN = TN

5 cm

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WART HILL

SOIL GEOCHEMISTRY

SILVER

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

FILE No.

SCALE 1 : 1000 METRES

FIG.

892544

7356

81-2696 Vol 44

13400 N —

13300 N —

13200 N —

13100 N —

13000 N —

9900 E

10000 E

10100 E

10200 E

CONTOUR INTERVAL

66	> 80 ppm
63	80 – 60 ppm
60	60 – 35 ppm
58	35 – 12 ppm
	< 12 ppm

– = Below limit of detection

• Cyprus Infill Lines

GN

MN

13°

GN = TN

892545

5 cm

7357

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

WART HILL

SOIL GEOCHEMISTRY

ARSENIC

DRAWN BY : C.T.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

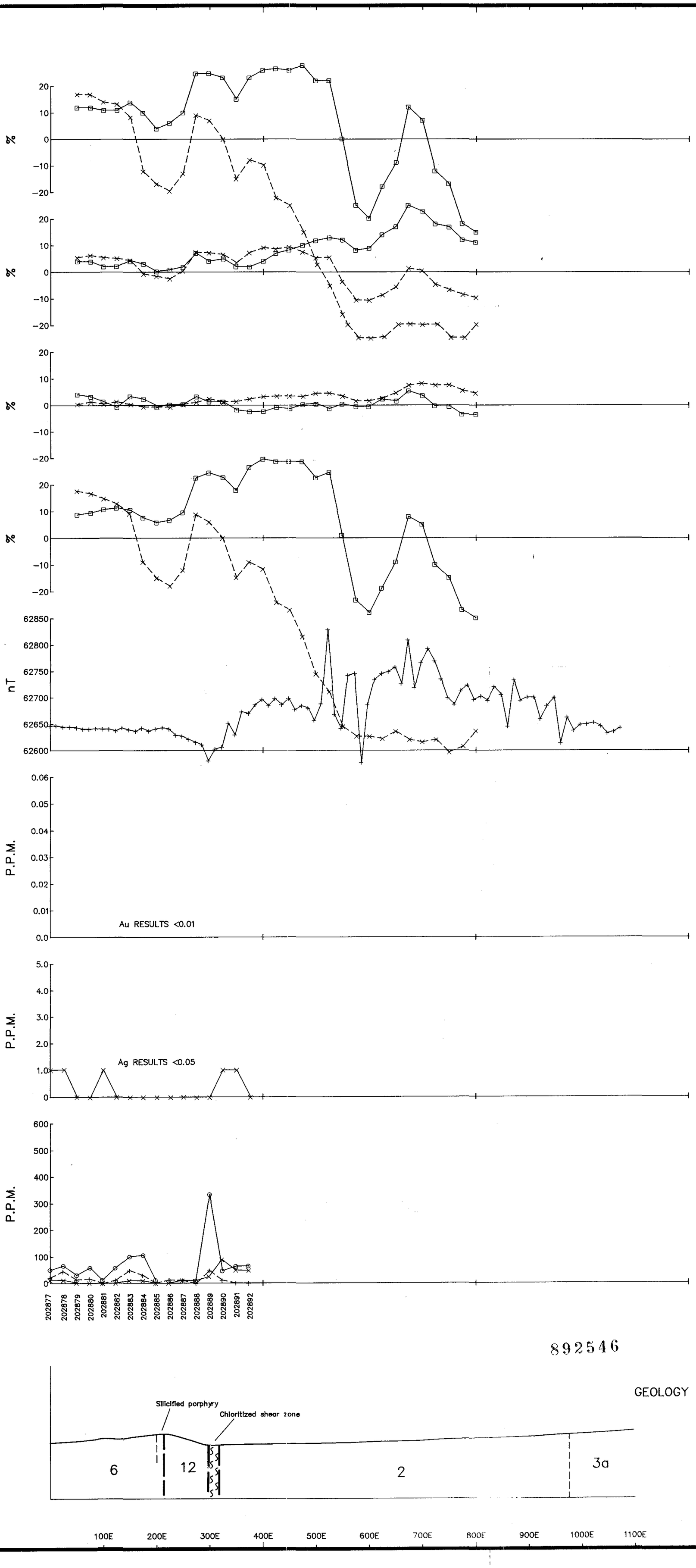
FILE No.

SCALE 1 : 1000 METRES

FIG.

REPORT 525

ENCLOSURE 62



892546

7358

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY — E.L. 40/85

PORPHYRY DOLERITE CONTACT

LINE 6450

PROFILES

DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 5000 (50 0 100 200 METRES)

FIG.

REPORT 525

ENCLOSURE 63

MAX — MIN

Tx ⟶ Rx = 100m

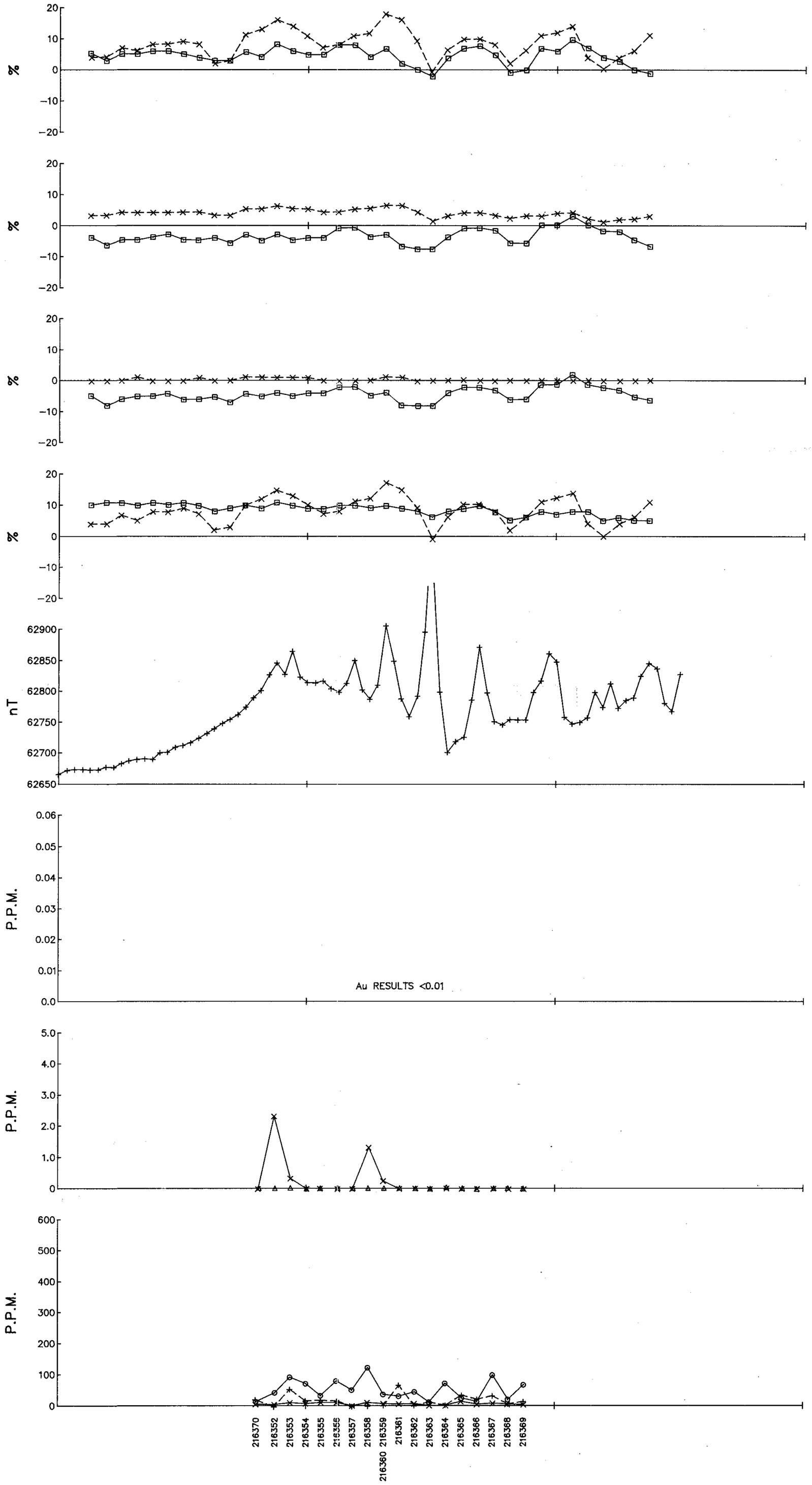
IN PHASE

OUT OF PHASE

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.	
ELLIOTT BAY — E.L. 40/85 MAG ANOMALY 5 PROFILES 52300 N, 85300 E	DRAWN BY : C.T. DRAFTSMAN : T.G.D.S. DATE : April '87 REVISIONS : FILE No.
SCALE 1 : 5000 (50 0 100 200 METRES)	FIG.

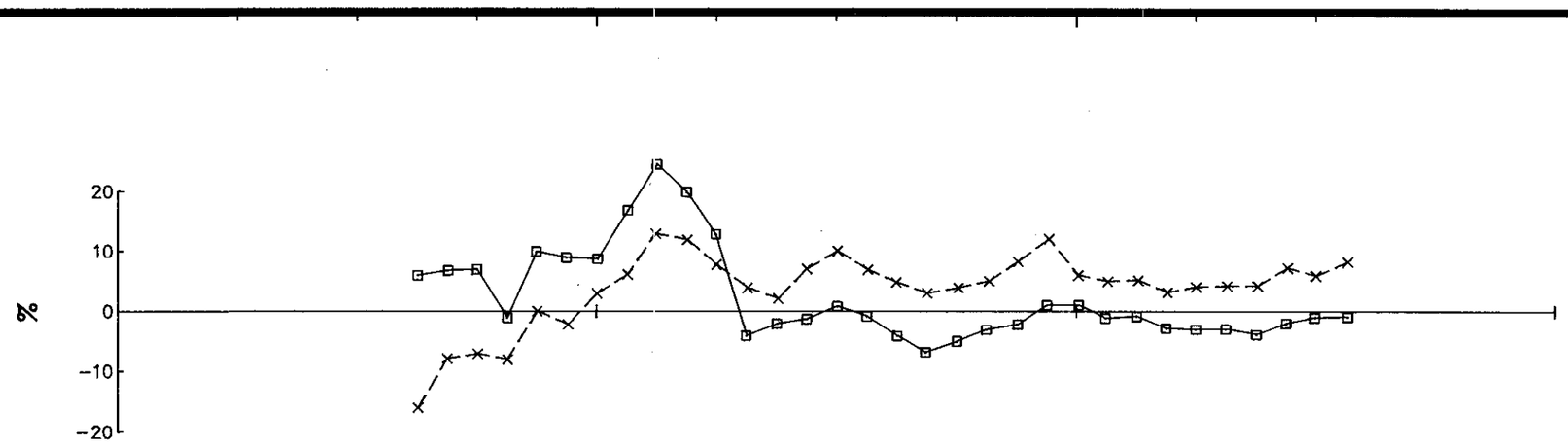
REPORT 525

ENCLOSURE 64

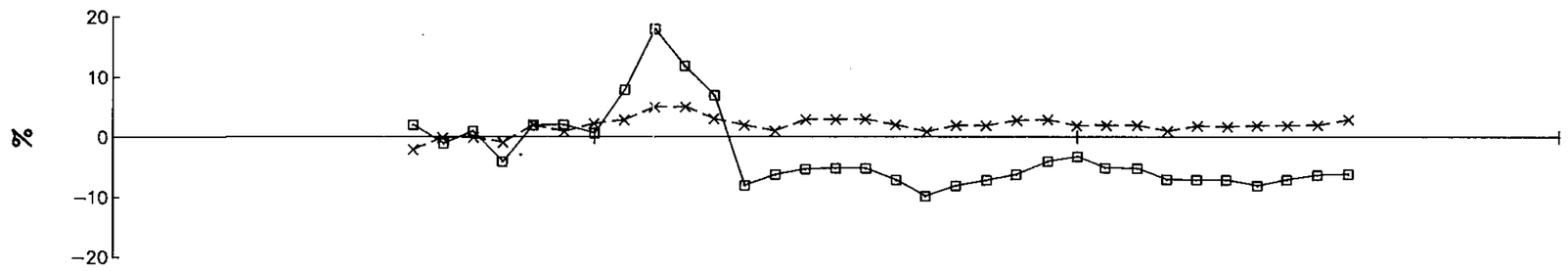


REPORT 525

ENCLOSURE 65



3555 Hz



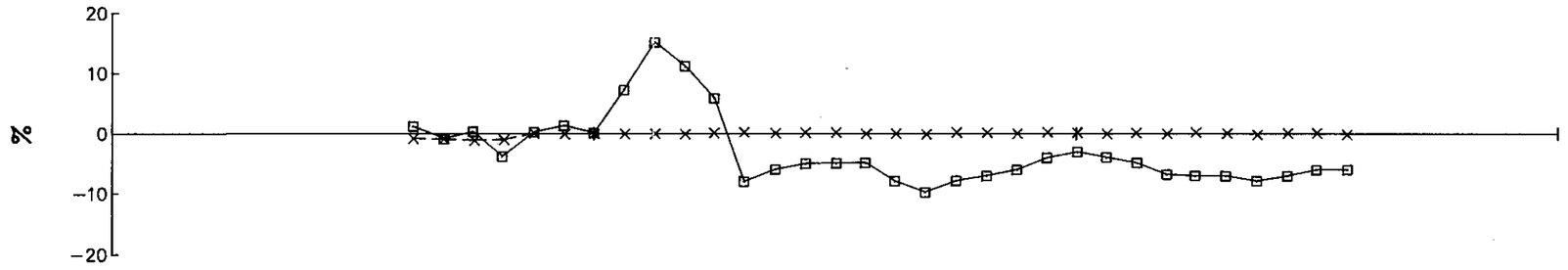
888 Hz

MAX – MIN

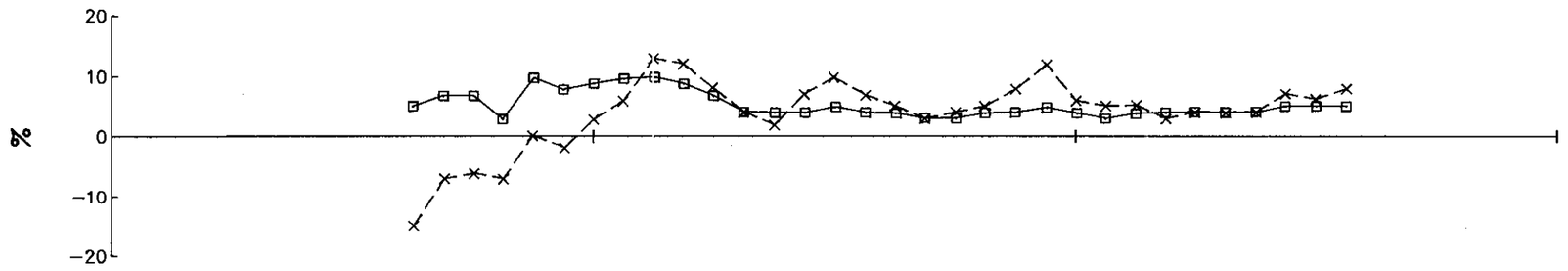
Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

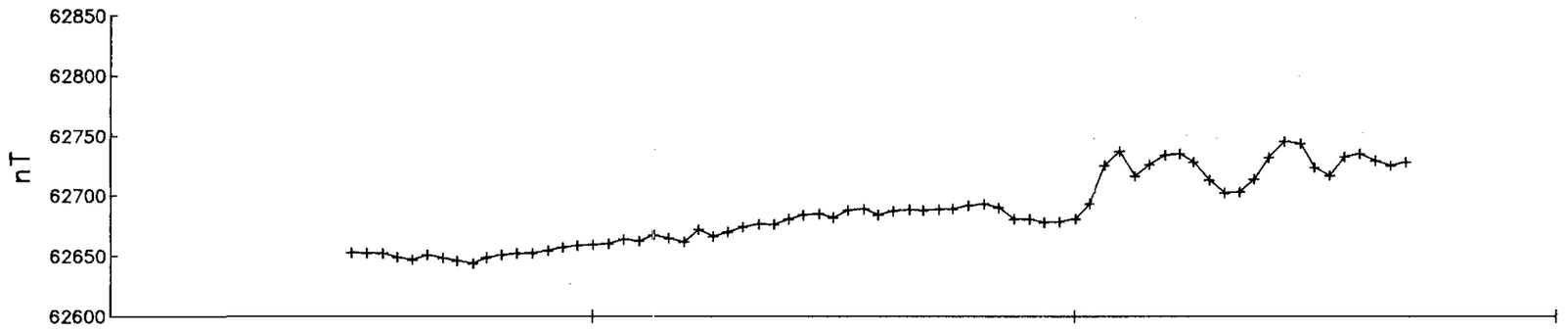
OUT OF PHASE ×– – –×



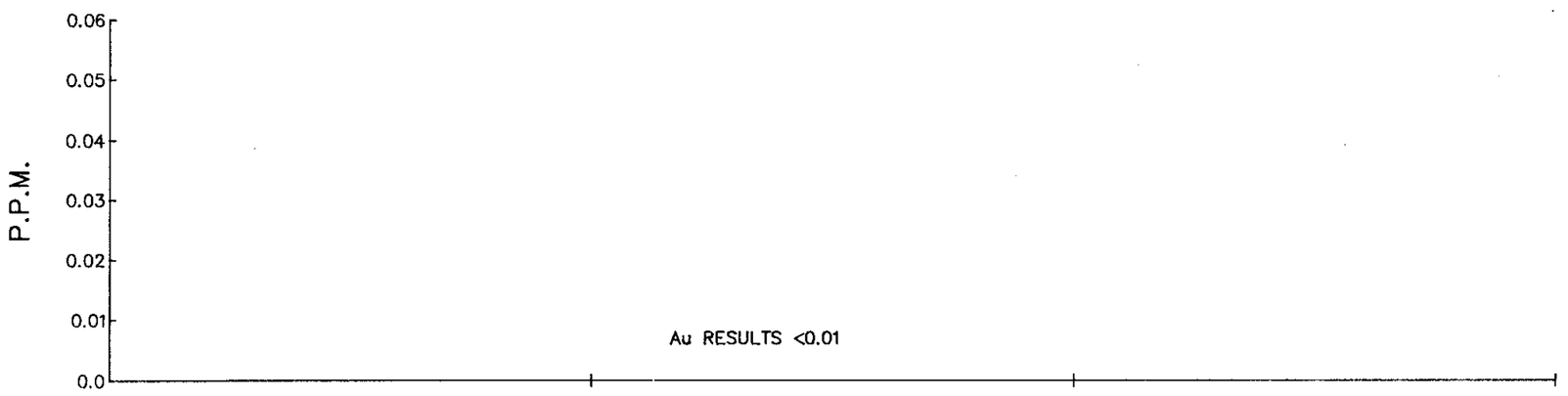
222 Hz



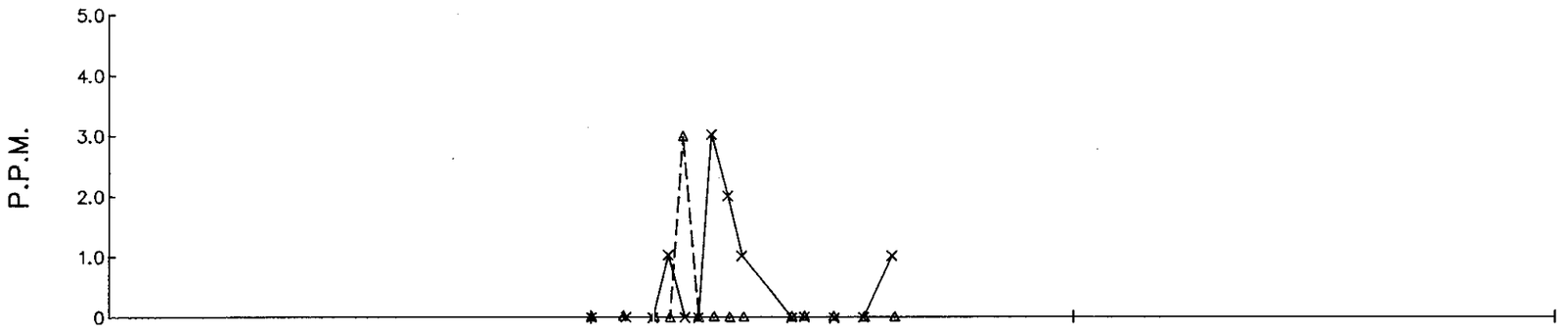
3555 Hz –222 Hz



MAGNETICS



Au



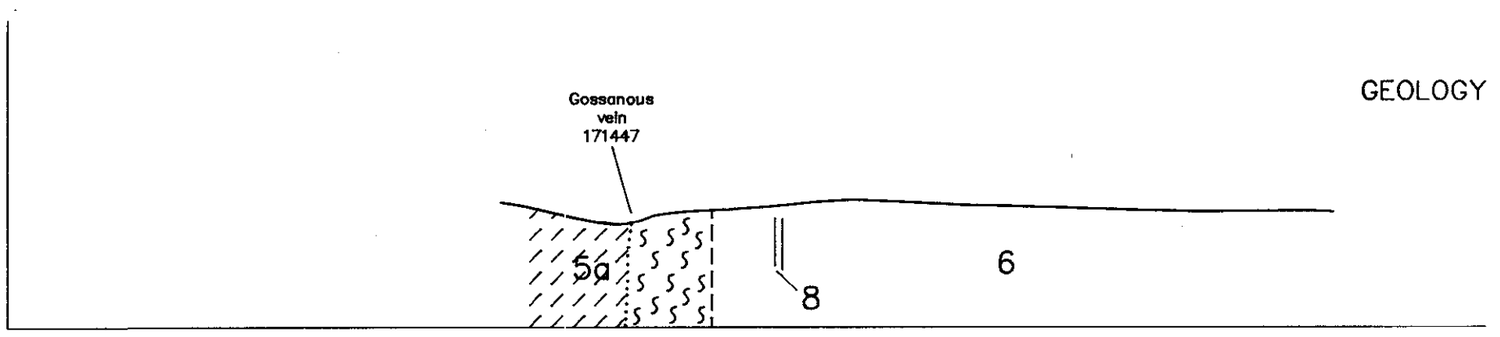
As ×
Ag △

Cu ×
Pb +
Zn ⊙

SOIL SAMPLE NUMBERS

892549

5 cm



GEOLOGY

1400E 1500E 1600E 1700E 1800E 1900E 2000E 2100E 2200E 2300E

87-2696 Vol 4/4 7361

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH PORPHYRY CONTACT

LINE 7

PROFILES

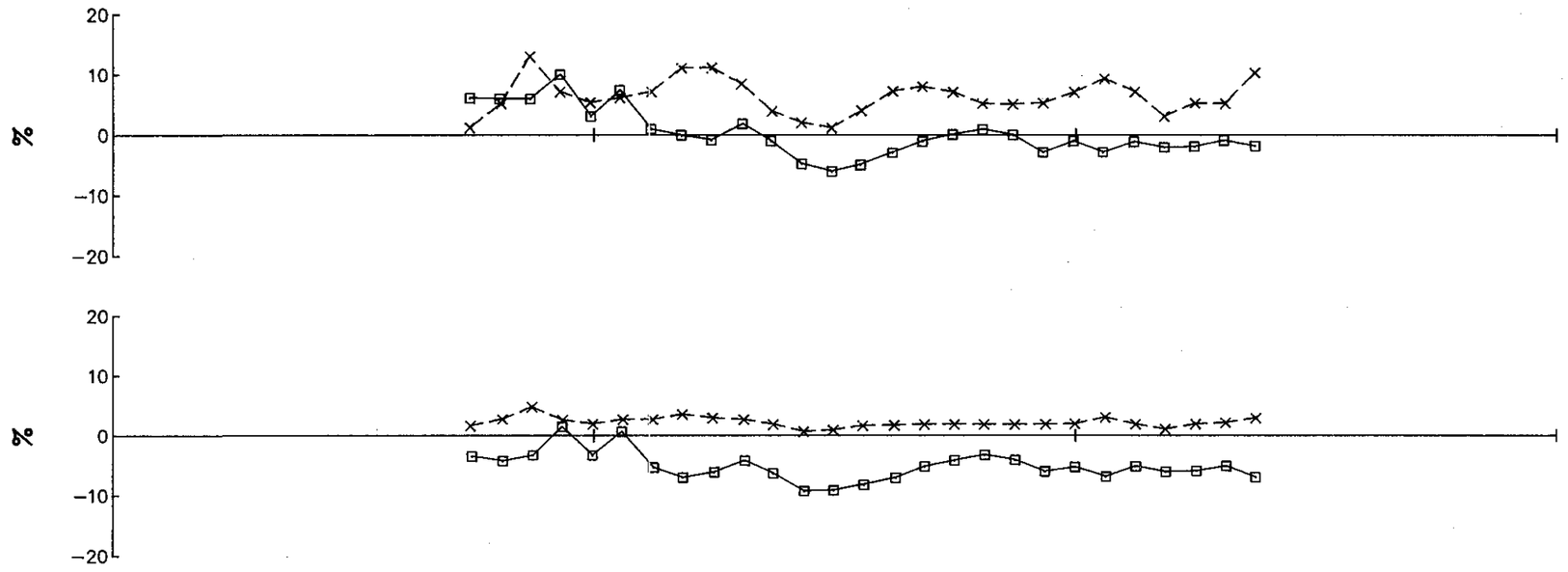
DRAWN BY : R.P.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 5000 (50 0 100 200 METRES)

FIG.

REPORT 525

ENCLOSURE 66



3555 Hz

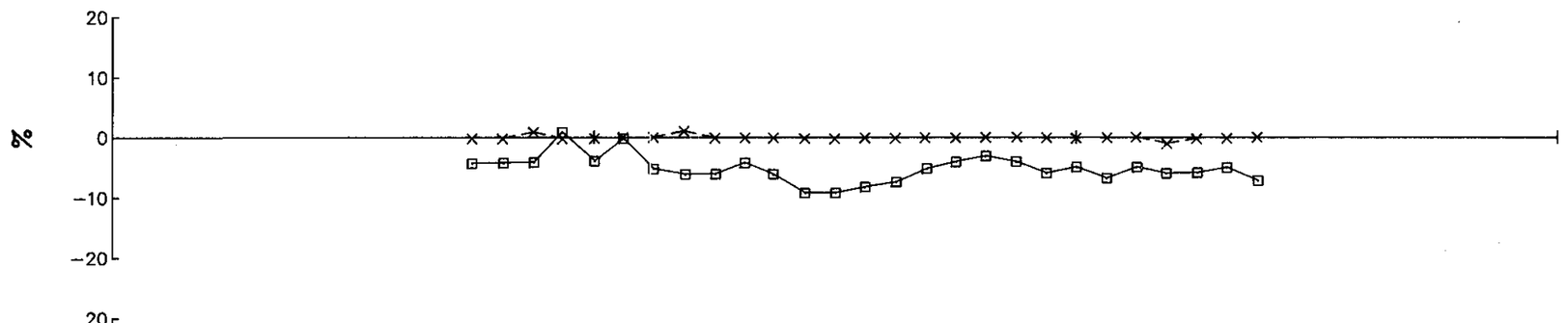
888 Hz

MAX − MIN

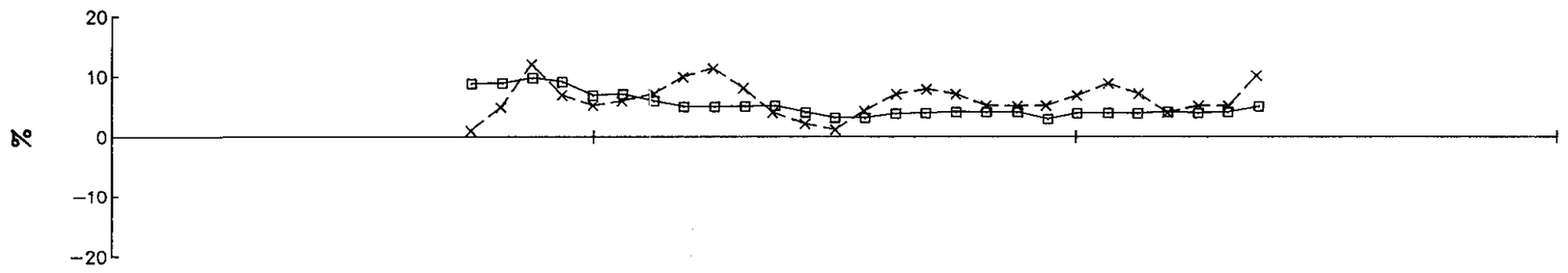
Tx ⟶ Rx = 100m

IN PHASE ▫——▫

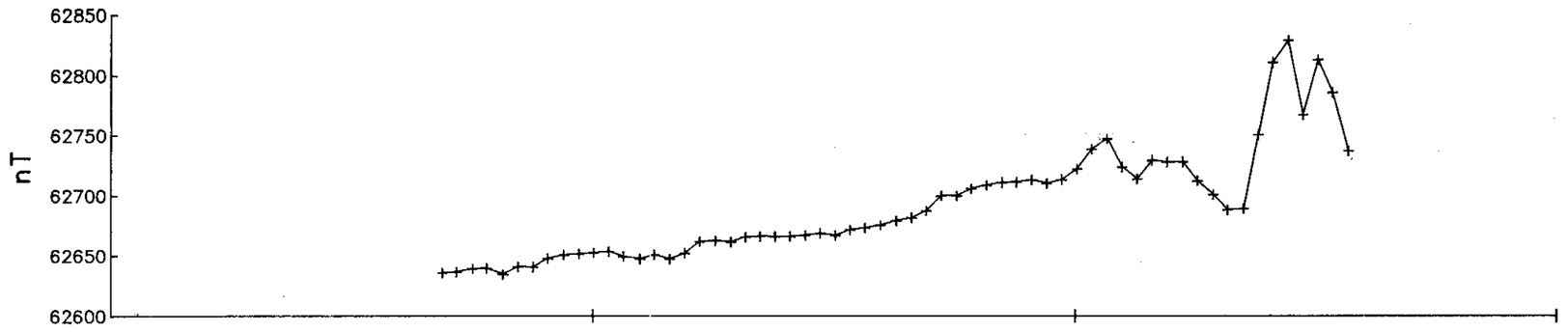
OUT OF PHASE ×– – –×



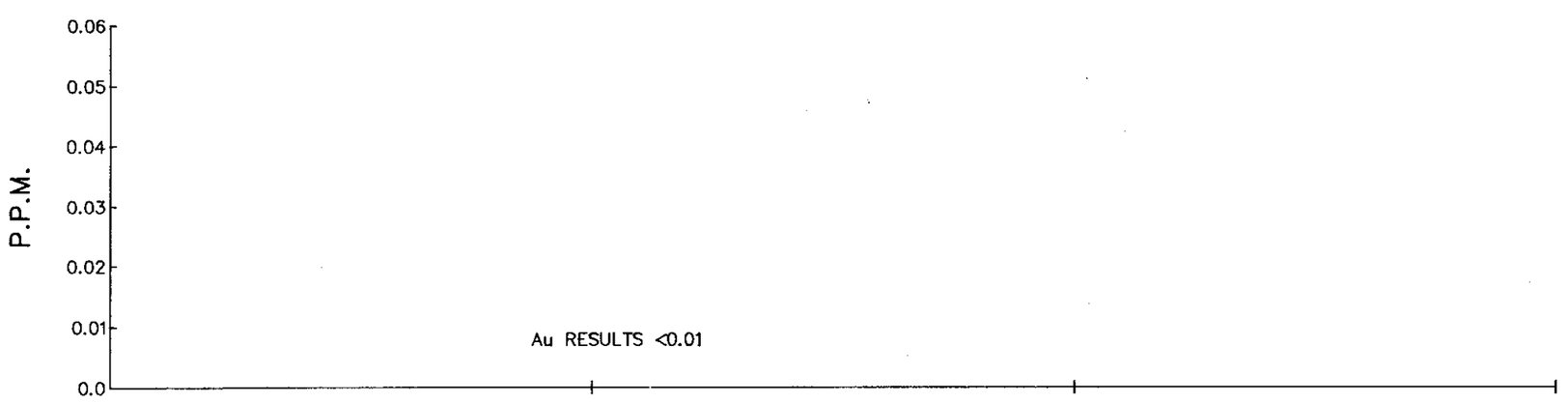
222 Hz



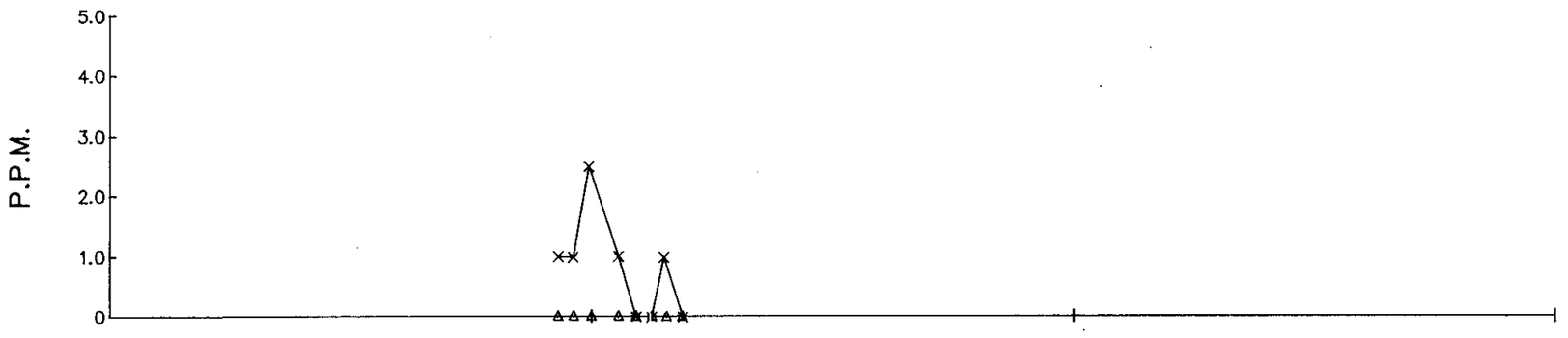
3555 Hz −222 Hz



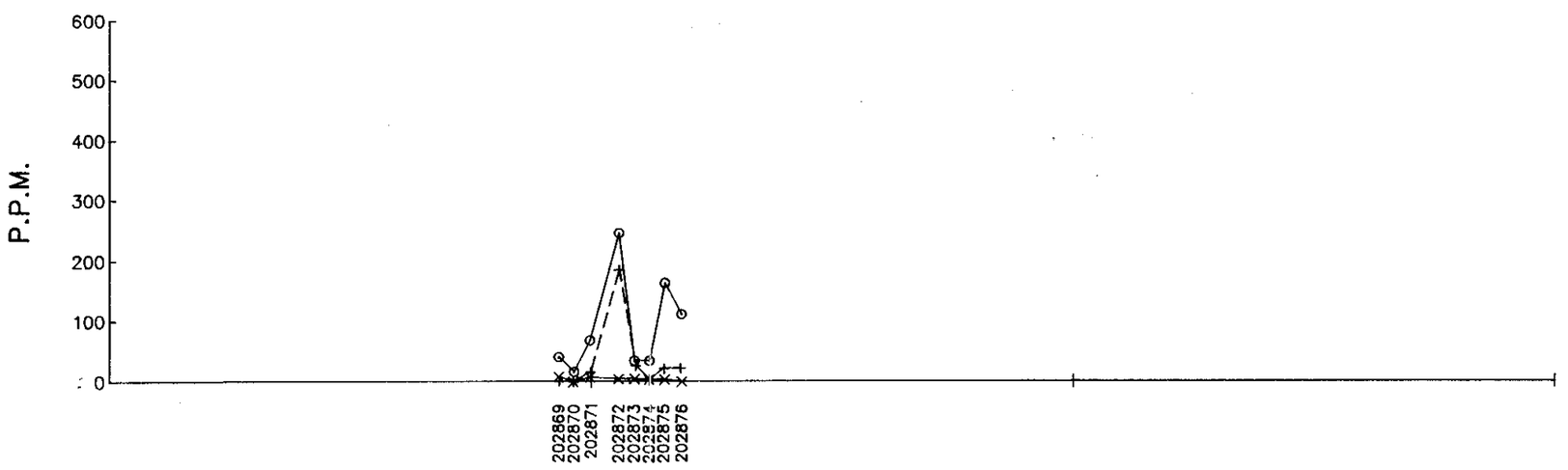
MAGNETICS



Au



As ×
Ag △



Cu ×
Pb +
Zn ⊙

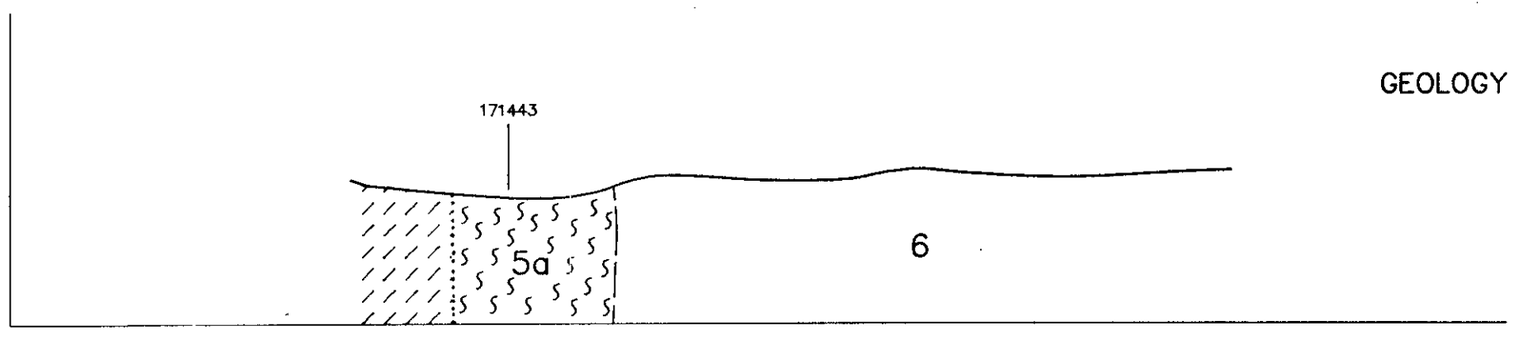
SOIL SAMPLE NUMBERS

892550

5 cm

7362

87-2696 Vol 4/4



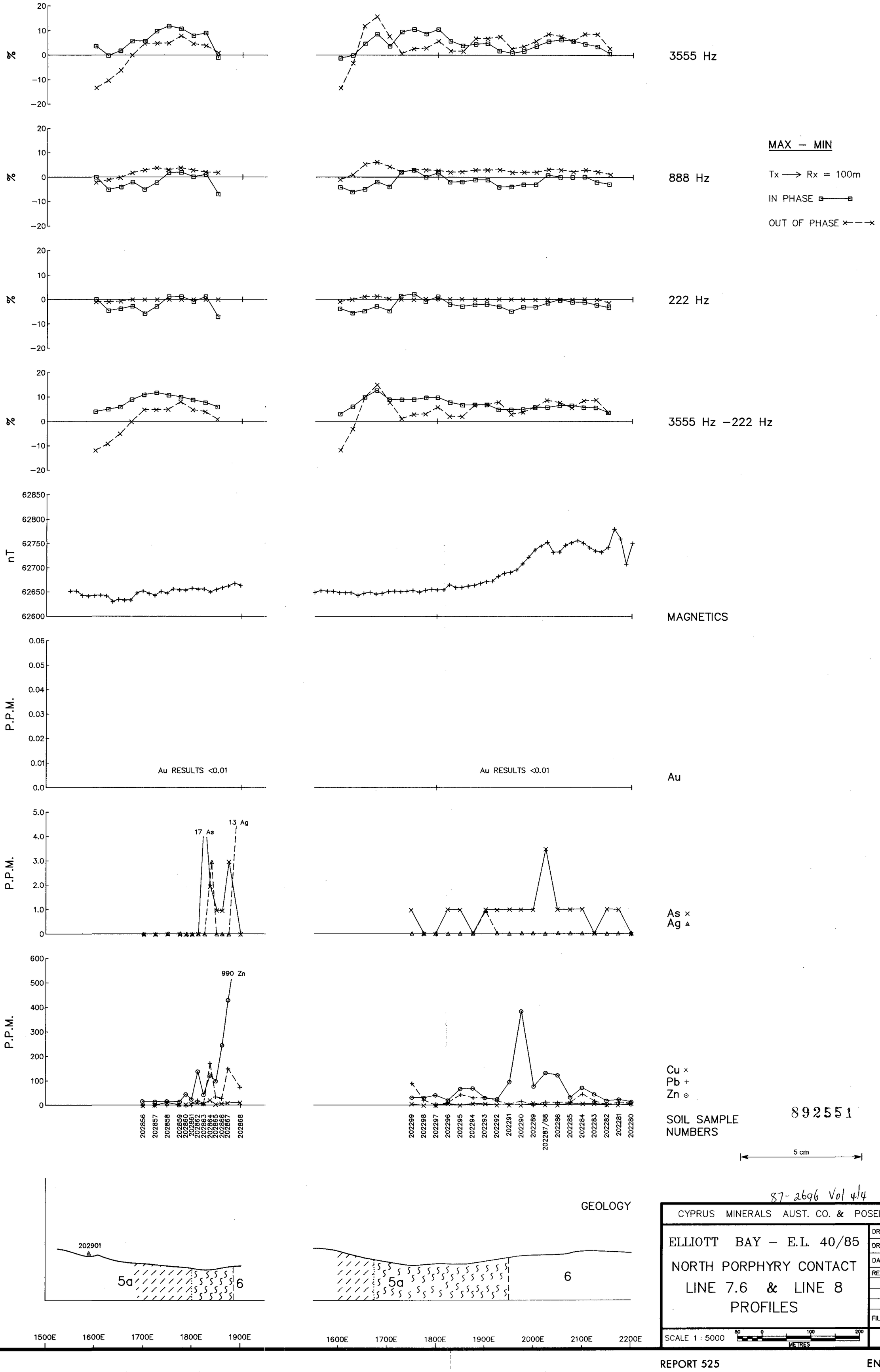
GEOLOGY

300W 200W 100W 00 100E 200E 300E 400E 500E 600E

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.	
ELLIOTT BAY – E.L. 40/85 NORTH PORPHYRY CONTACT LINE 7.5 PROFILES	DRAWN BY : R.P. DRAFTSMAN : T.G.D.S. DATE : April '87 REVISIONS : FILE No.
SCALE 1 : 5000 (50 0 100 200 METRES)	FIG.

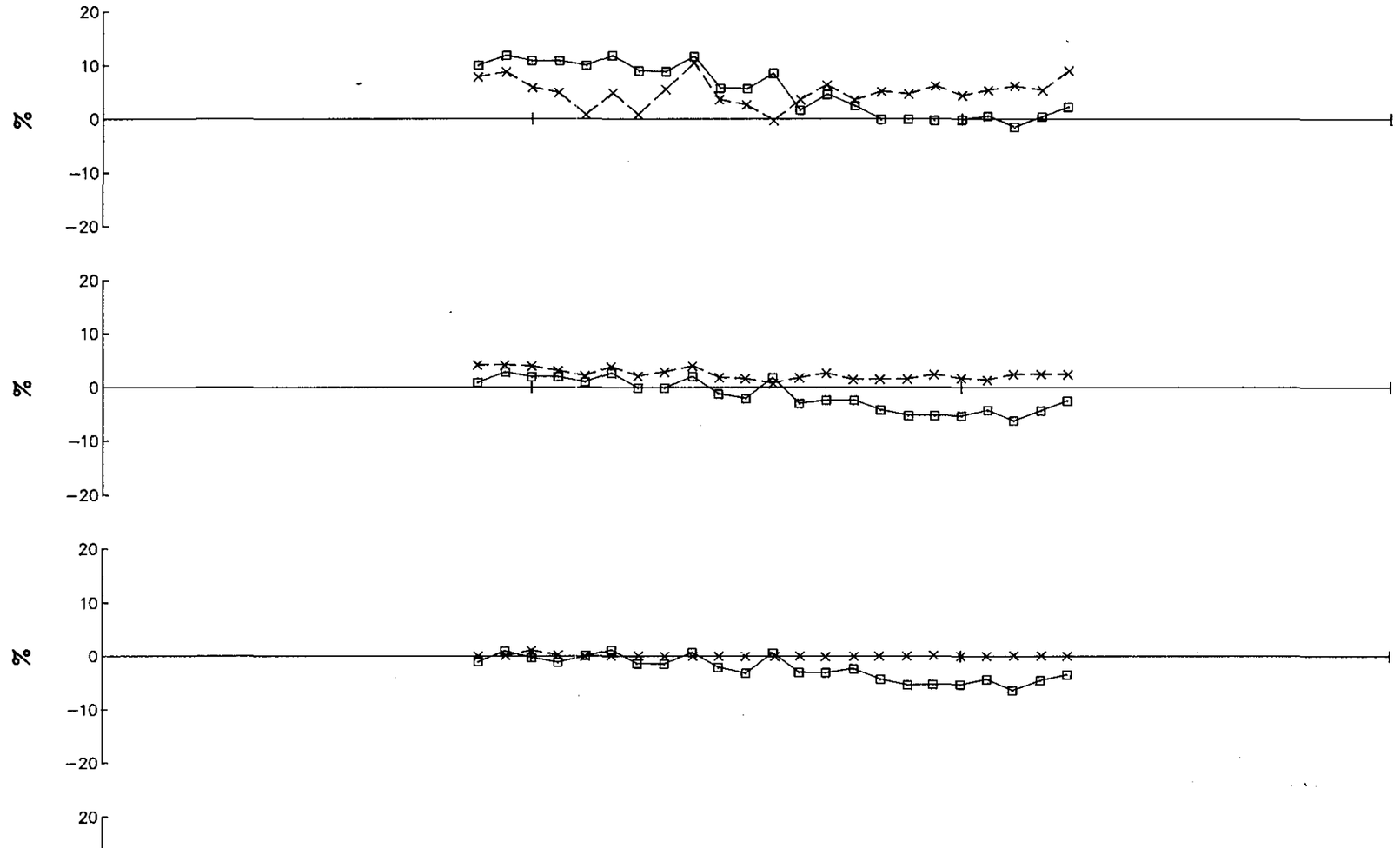
REPORT 525

ENCLOSURE 67



REPORT 525

ENCLOSURE 68

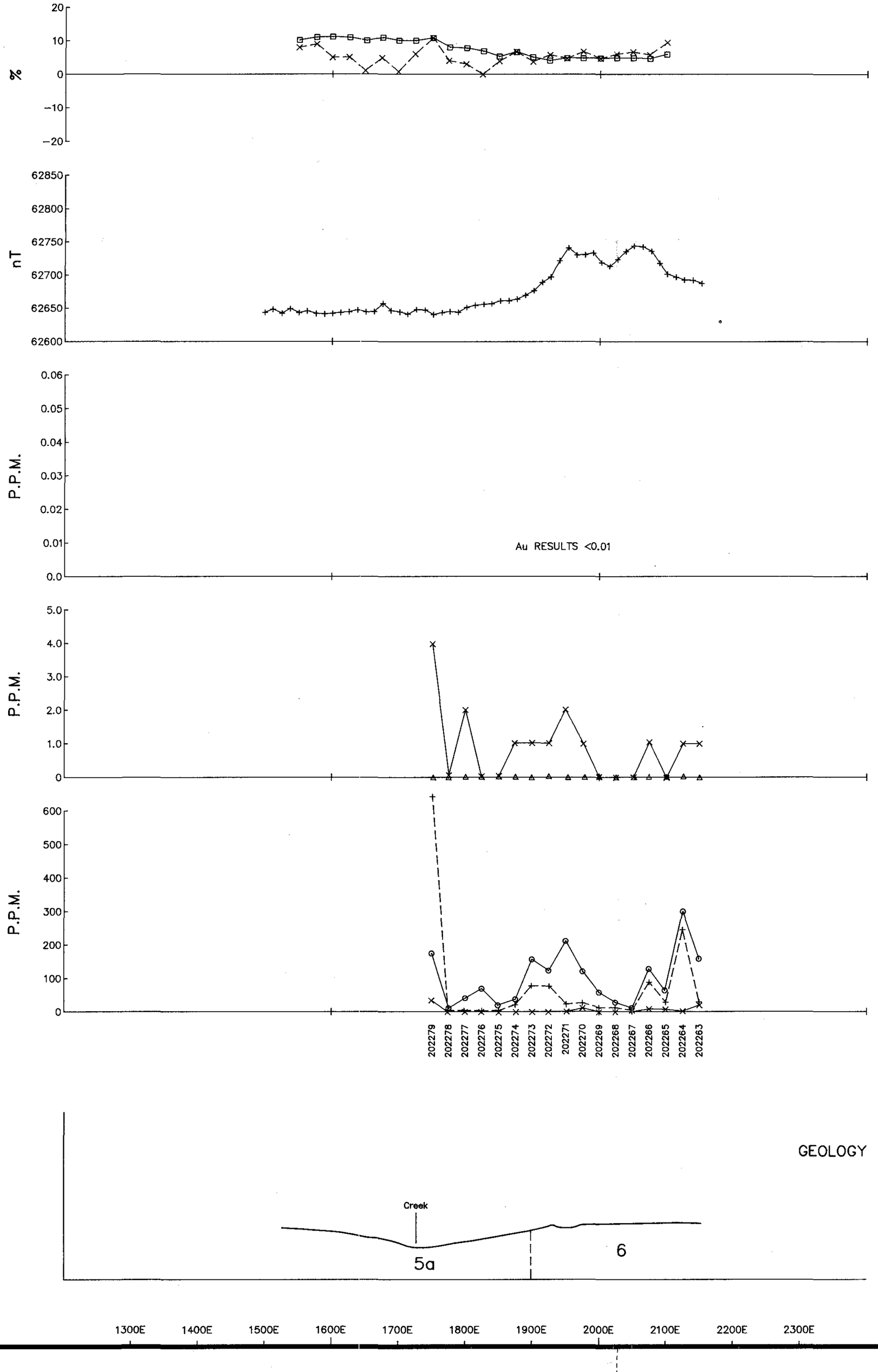


MAX − MIN

Tx ⟶ Rx = 100m

IN PHASE ⊡——⊡

OUT OF PHASE ×– –×



87-2696 Vol 4/4

7364

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

NORTH PORPHYRY CONTACT

LINE 9

PROFILES

DRAWN BY : R.P.

DRAFTSMAN : T.G.D.S.

DATE : April '87

REVISIONS :

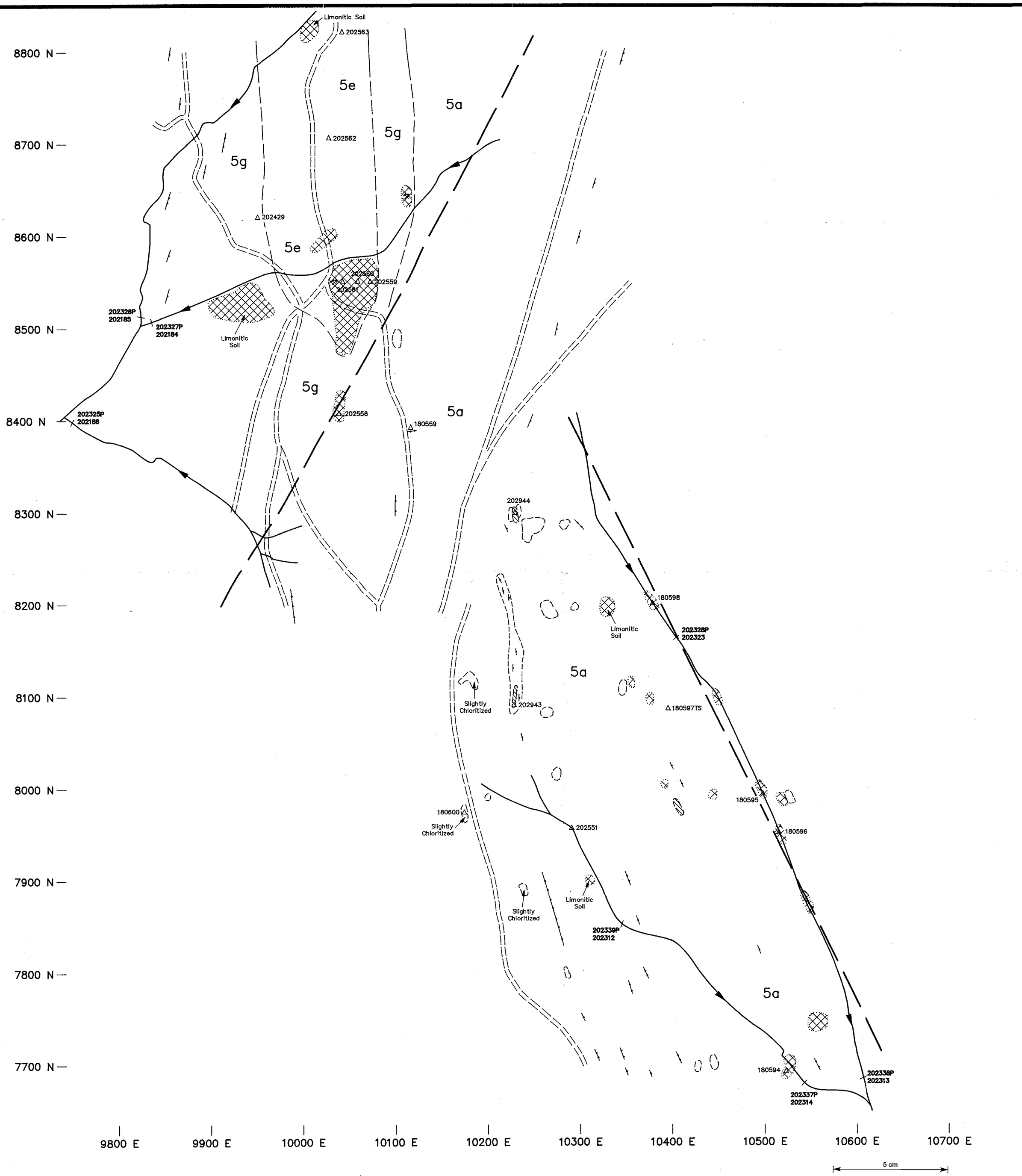
FILE No.

SCALE 1 : 5000 (50 0 100 200 METRES)

FIG.

REPORT 525

ENCLOSURE 69



LEGEND

- Highly fractured & silicified quartz
- Chloritic alteration
- Outcrop
- Quartz vien
- ⚒ Old workings
- Δ180595 Rock chip
- 202339P / 202312 Stream sediment Panned concentrate 80#
- 180597TS Δ Thin section sample
- Fault
- Tracks

NOTE: For rock types refer to Figure 3.

GN
MN
13°
GN = TN

892553

7365

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

LEWIS RIVER

GEOLOGY

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : April '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

REPORT 525

ENCLOSURE 70

8800 N
8700 N
8600 N
8500 N
8400 N
8300 N
8200 N
8100 N
8000 N
7900 N
7800 N
7700 N

9800 E | 9900 E | 10000 E | 10100 E | 10200 E | 10300 E | 10400 E | 10500 E | 10600 E | 10700 E

5 cm

7366

87-2696 Vol 4/4

LEGEND

ROCK CHIP

Δ Cu | Ag / Pb | As / Zn | Au (ppm)

STREAM SEDIMENT

(5) — Au Grain Count

Cu | Ag / Pb | As / Zn | Au

−80# Panned Concentrate

GN = TN

MN 13°

802554

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

LEWIS RIVER

Rock Chip & Stream Sediment SAMPLE RESULTS

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

8800 N
8700 N
8600 N
8500 N
8400 N
8300 N
8200 N
8100 N
8000 N
7900 N
7800 N
7700 N

9800 E
9900 E
10000 E
10100 E
10200 E
10300 E
10400 E
10500 E
10600 E
10700 E

5 cm

GN
MN
13°
GN = TN

892555

87-2696 Vol 4/4 7367

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

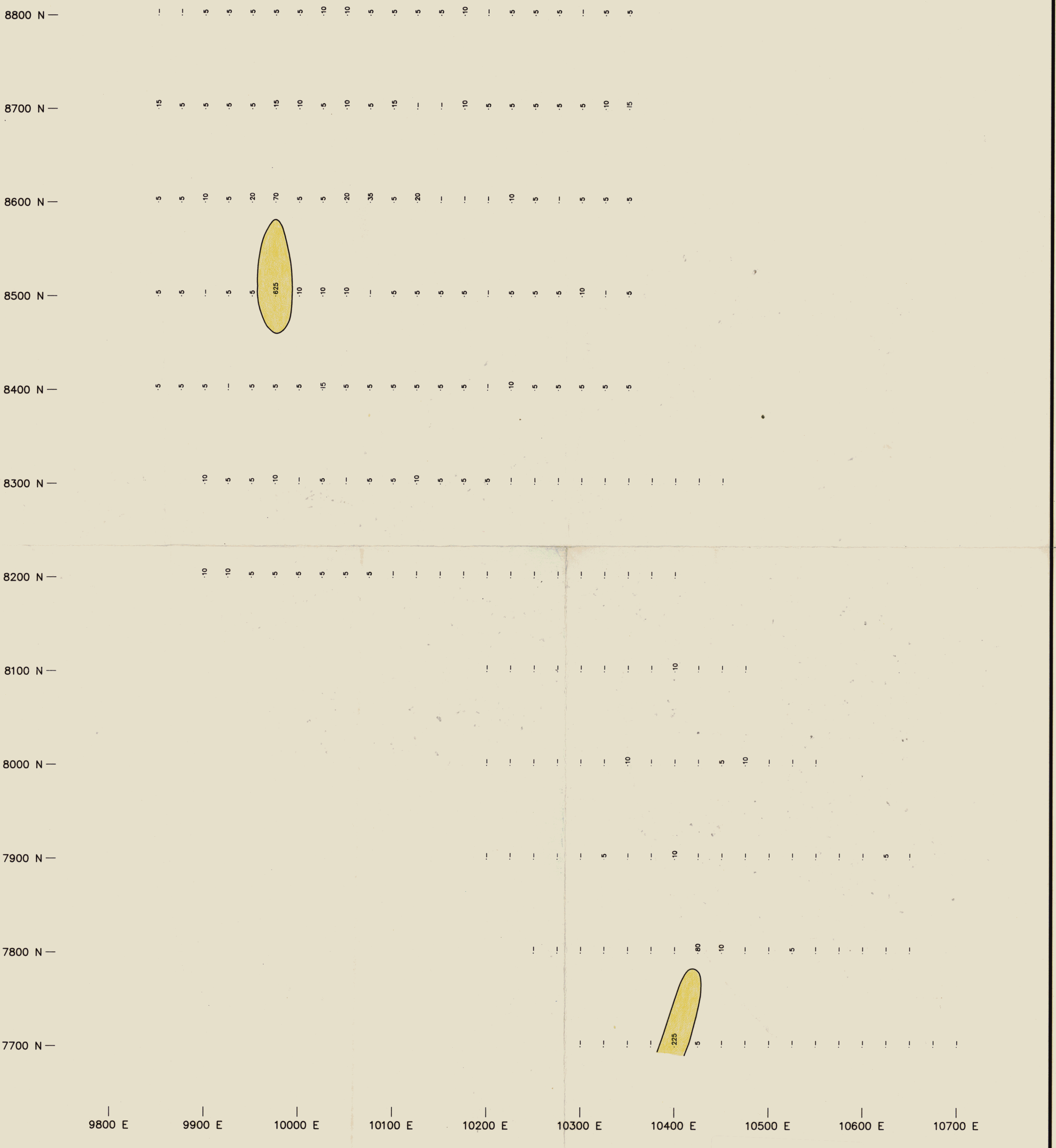
LEWIS RIVER

SOIL SAMPLE LOCATIONS

DRAWN BY : C.T.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 2500 25 0 50 100 METRES

FIG.



7368

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

LEWIS RIVER

SOIL GEOCHEMISTRY

COPPER (ppm)

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

892556

REPORT 525

ENCLOSURE 73

8800 N
8700 N
8600 N
8500 N
8400 N
8300 N
8200 N
8100 N
8000 N
7900 N
7800 N
7700 N

9800 E
9900 E
10000 E
10100 E
10200 E
10300 E
10400 E
10500 E
10600 E
10700 E

5 cm

CONTOUR INTERVAL

33 100 – 500 ppm

37 >500 ppm

GN
MN
13°
GN = TN

892557

7369

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

LEWIS RIVER

SOIL GEOCHEMISTRY

LEAD (ppm)

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.
FIG.

SCALE 1 : 2500 25 0 50 100 METRES

REPORT 525 ENCLOSURE 74

8800 N
8700 N
8600 N
8500 N
8400 N
8300 N
8200 N
8100 N
8000 N
7900 N
7800 N
7700 N

9800 E
9900 E
10000 E
10100 E
10200 E
10300 E
10400 E
10500 E
10600 E
10700 E

5 cm

CONTOUR INTERVAL

42 100 – 500 ppm

45 >500 ppm

GN
MN
13°
GN = TN

892558

31-2696 Vol 4/4 7370

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

LEWIS RIVER

SOIL GEOCHEMISTRY

ZINC (ppm)

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 2500 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 75

8800 N —

8700 N —

8600 N —

8500 N —

8400 N —

8300 N —

8200 N —

8100 N —

8000 N —

7900 N —

7800 N —

7700 N —

9800 E | 9900 E | 10000 E | 10100 E | 10200 E | 10300 E | 10400 E | 10500 E | 10600 E | 10700 E

5 cm

GN

MN

13°

GN = TN

892559

87-2696 Vol 44 7371

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY — E.L. 40/85

LEWIS RIVER

SOIL GEOCHEMISTRY

SILVER (ppm)

DRAWN BY : R.H.

DRAFTSMAN : T.G.D.S.

DATE : May '87

REVISIONS :

FILE No.

SCALE 1 : 2500 25 0 50 100 METRES

FIG.

REPORT 525

ENCLOSURE 76

8800 N
8700 N
8600 N
8500 N
8400 N
8300 N
8200 N
8100 N
8000 N
7900 N
7800 N
7700 N

9800 E
9900 E
10000 E
10100 E
10200 E
10300 E
10400 E
10500 E
10600 E
10700 E

CONTOUR INTERVAL

60 2 – 10 ppm

63 >10 ppm

GN
MN
13°
GN = TN

5 cm

892560

7372

87-2696 Vol 4/4

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

LEWIS RIVER

SOIL GEOCHEMISTRY

ARSENIC (ppm)

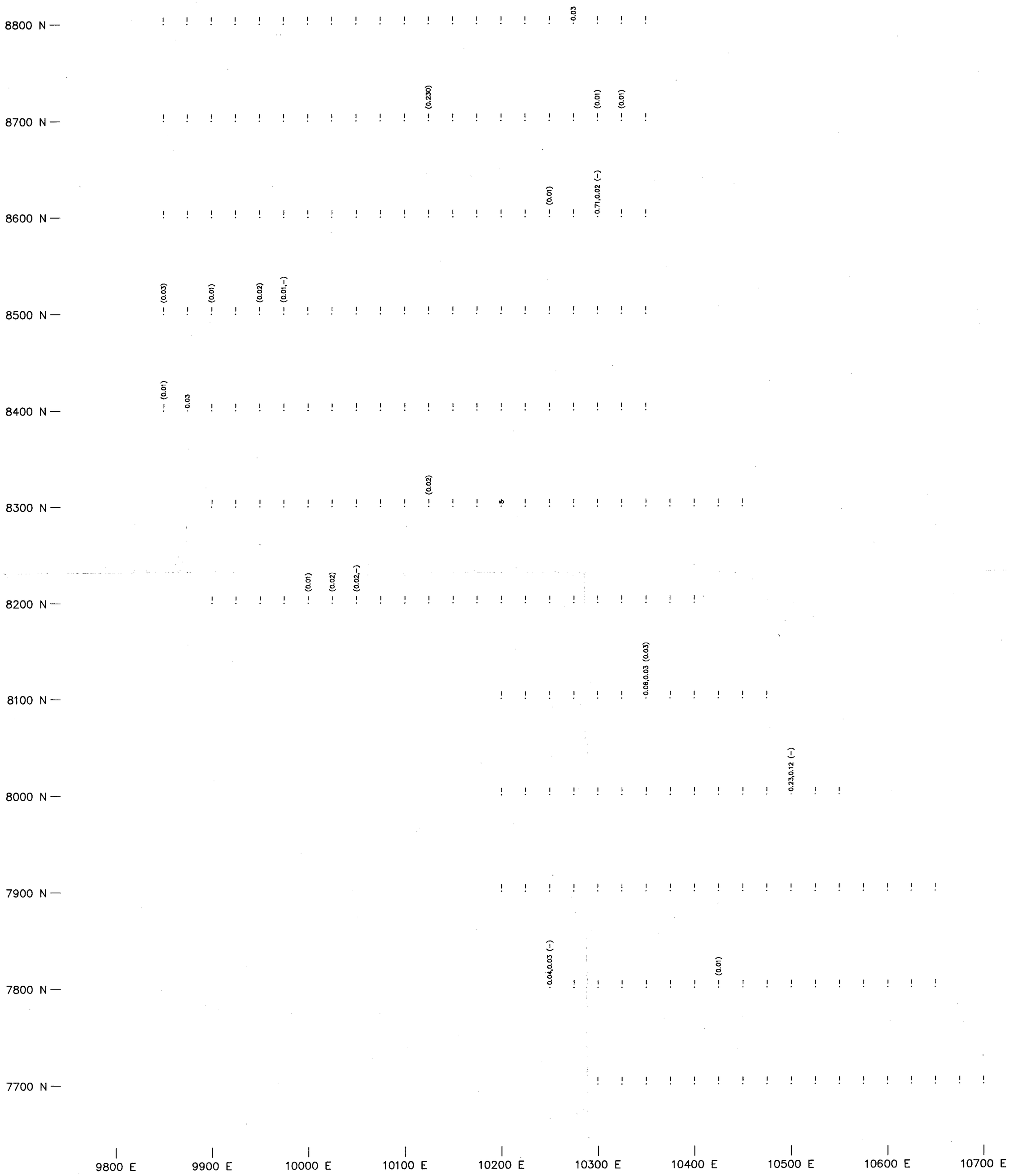
DRAWN BY : R.H
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

REPORT 525

ENCLOSURE 77



LEGEND

Sample location · 0.03,0.01 AAS assay and repeat · (0.05,0.01) Fire assay and repeat

– This indicates that both AAS and Fire assays are below limit of detection

GN
MN
13°
GN = TN

892561

87-2696 Vol 44 7373

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

LEWIS RIVER

SOIL GEOCHEMISTRY

GOLD (ppm)

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

REPORT 525

ENCLOSURE 78

8800 N
8700 N
8600 N
8500 N
8400 N
8300 N
8200 N
8100 N
8000 N
7900 N
7800 N
7700 N

9800 E
9900 E
10000 E
10100 E
10200 E
10300 E
10400 E
10500 E
10600 E
10700 E

5 cm

GN
MN
13°
GN = TN

Note: Add 62000 to all values

87-2696 Vol 414 7374

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85

LEWIS RIVER

GROUND MAGNETICS DATA

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :

FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.

892562

8800 N

8700 N

8600 N

8500 N

8400 N

8300 N

8200 N

8100 N

8000 N

7900 N

7800 N

7700 N

9800 E | 9900 E | 10000 E | 10100 E | 10200 E | 10300 E | 10400 E | 10500 E | 10600 E | 10700 E

5 cm

NOTE:
Vertical scale 1cm = 25nT
Base level 62750nT

GN
MN
13°
GN = TN

892563

87-2696 Vol 4/4 7375

CYPRUS MINERALS AUST. CO. & POSEIDON LTD.

ELLIOTT BAY – E.L. 40/85
LEWIS RIVER PROSPECT
GROUND MAGNETICS
STACKED PROFILES

DRAWN BY : R.H.
DRAFTSMAN : T.G.D.S.
DATE : May '87
REVISIONS :
FILE No.

SCALE 1 : 2500 (25 0 50 100 METRES)

FIG.